American Journal of Public Health
and THE NATION'S HEALTH Vol. XIII No. 12

Volume XXI December, 1931 Number 12

A Suggested Community Mental Hygiene Program*

GEORGE S. STEVENSON, M. D.

Director, Division on Community Clinics, The National Committee for Mental Hygiene, New York, N. Y.

IT might be appropriate to change the title of this presentation so that it would read "Suggestions for a Community Program." I hope that I may be successful in stressing the point that a cut and dried pattern is quite out of order, and obstructive to a community program in health and other social fields. There is altogether too much parroting of that sort. A program that fits beautifully into one community is sometimes copied blindly by another and found seriously wanting; or, what is even worse, a program that works only moderately well is copied with its bad as well as its good features. Similarly, too often the sponsors of a program that works out well in one community conclude that a program which differs is to be condemned, even though the differing program may be in a quite different community.

Perhaps it is to be expected that the psychiatrist who can rely so little on formula and prescription in his work, who finds no two cases alike, and has little patience with bionomial diagnosis, would extend his demand for individual treatment to the community. Individualization is the keynote of this presentation, still it must be common sense individualization, and not the sort practised by the man who rejects the experiences of a community of 40,000 population because his problem has to do with the community of 35,000.

The approach to a bit of community organization has certain features in common with medical practice. The community is a patient;

* Presented at a Joint Session of the Child Hygiene and Public Health Nursing Sections of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 14, 1931.

it has defects; perhaps it is suffering because it has not sufficient of a health or social program to allow it satisfactorily to digest its school program. The community is a more or less integrated individual, and no one phase of community endeavor is self-sufficient. Each affects the other and all must be considered in the planning of any one. The community may have disorders as well as defects. It may have attempted to assimilate a health program which is so at odds with its individual characteristics that it suffers permanent distress and seeks help perhaps from this or that national organization. The community is also similar to the patient in that we find the technical approach to a problem to be the same. First there is a complaint, then examination, then diagnosis and prognosis, and finally treatment.

With all of these possibilities for the entrance of variables into the situation, is it not clear that a community program cannot be a finished plan? About the only thing that is finished in the community program is the part that has been so tried that its success is evident. Even that is constantly being supplemented. Instead of conceiving of a community program as a set picture, it is probably more productive to think of it as a chain of probable steps looking into the future. Each step has to be scanned thoroughly and reconditioned before it is put into operation. There must be alternate steps and flexibility which will allow of every opportunity for constructive growth. Such a view of a community program predetermines a policy of slow building and continuous integration, and precludes anything in the nature of mimeographed directions.

There is no such thing as an adequate, universal, community program. Only the individual utilization of experience leads to satisfactory provision to meet a community need. In fact, the satisfactory program is a result of three sets of influences: the community need, the community peculiarities, and the accumulated experience of other communities.

COMMUNITY NEEDS

Community needs are the most constant of this triad because they are the outgrowth of the needs of the people composing the community. People do not differ so much from place to place. We find, in general, that 4 phases of mental hygiene service are demanded: The extreme, or custodial phase, is represented by the feebleminded and psychotic, who cannot be rehabilitated. The remedial is represented by the ambulant, or institutionalized patient, where the major motive is the elimination of a developed condition, which is in itself intolerable. The preventive mental hygiene effort may often appear in many re-

spects remedial, because a problem already exists, yet if the attack on the problem presented is conditioned more by the future threat than the present, intolerability of the disturbance, the motive of prevention, dominates. The fourth phase is that of enrichment, or positive health, wherein the effort is toward the increasing of the efficiency and margin of safety of the individual as to his mental life, and the releasing of his potentialities thereby, for greater constructive effort and greater enjoyment of life. It is obvious that there is no sharp dividing line between these 4 phases. They represent a gradation, all points of which must enter into the conception of a community program.

Community needs may be conveniently looked at from the standpoint of specific services. A mental hygiene program must consider provision for the major and minor psychoses, borderline deviations, and those arising obscurely in association with other medical and social problems. The program that does not at least consider the mental hygiene needs of the person who has "heartburn" and "gas," or who has an undue fondness for other people's property, is apt later to find its community in the category of those complaining of a defect. Provision for the mentally retarded is an essential part of any program, and the need of the problem child has become so far recognized as a community need that today we find the equivalent of 3,000 hours per week of high grade clinic service for children in the United States. Beyond this point the community mental hygiene needs fall to a large extent outside the medical field and require that the erection of a community program consider, and at least leave place for, mental hygiene functions of the school, the court, the social agency, the recreational agency, the church, the home and the workshop.

The essential developments in these fields should if possible antedate the more complicated psychiatric services for children; in fact the National Committee for Mental Hygiene consistently urges that, even where assured, the establishment of a child guidance clinic await such development if there is any reasonable hope of success.

The extent of decentralization that is necessary to insure geographical and functional economy in these various fields must be considered. Is time saved and is coöperation effected from close proximity to the case, with the effort and expense of putting it through, instead of at a central point? How far must strong centralization be insisted on? A community needs both the benefits of centralization and decentralization, and the optional compromise based on individual circumstances is the answer. Such services as night clinics for the employed, and observation facilities, are features which represent a response to a need for all-around economy of service. Many other tricks

of program organization, representing community needs, are revealed in a study of accumulated experience.

COMMUNITY PECULIARITIES

Community peculiarities represent the chief variable in the construction of a program and exact of us this much stressed individual consideration. Unless we know community peculiarities, we have no basis for integrating our accumulated experiences so that they will meet community needs. The survey approach is the chief instrument for bringing community peculiarities into the form of workable data. Such a survey may be made specifically from the mental hygiene viewpoint, or may be part of a broader health or welfare study.

This community examination is, of course, best done by one who is accustomed to making such studies, and for the most part, such persons are associated with, or known to, national agencies. But at times it is necessary to rely on a local or imported person whose authority lies in the technical mental hygiene field, although not experienced in the variables of community organization. Less satisfactory, but still far better than ignorance, is the self-survey, whereby the examination is conducted by inexperienced local talent, if possible, with authoritative direction, maybe from the outside. Such a community examination should reveal peculiarities of size, population, geographical and climatic influences, culture, wealth, social structure, efforts in progress which bear on mental health, and proximity to centers of population, universities, hospitals and other resources. The study should reveal community habits of stability and political attitudes and interferences. Ignorance of these things has been a cause of grief to many a project otherwise well conceived.

ACCUMULATED EXPERIENCE

Given an appreciation of community needs and peculiarities, we look to accumulated experience to guide us to a course of action. Accumulated experience is quite different from isolated experience, the guide which is used when one community copies the plan used by another. Accumulation of experience requires the study of a large number, as many as possible, of programs in action under different conditions and with various degrees of success. It is preferably analytical so that the causes of success and failure are not ignored, and so that a good trick in a poor total job, or a poor element in a total good program, will not pass unnoticed. The accumulation of experience is primarily the job of the national agency, which is most apt to see in one city the very experience that another is looking for. The national

agency is in a position to watch a trend developing, to keep in touch with it, to evaluate it by comparison with other experiences, and to call it to the attention of the community which needs it. If for nothing else than to lay out an itinerary for the accumulation of experience by those locally involved in construction of a mental hygiene program, I feel that the national agency has a contribution to make to every project of this sort. I say this not with the spirit of vaunting, but with the seriousness that comes from seeing the valuable discoveries and precious experience of a program in one place ignored by another.

Reduced to its essentials, the foregoing discussion of the philosophy surrounding the creation of a community program could be stated as follows:

A community program is not a completed picture, but a line of procedure with alternate steps. It must consider all phases of mental health work—custodial, remedial, preventive, and enriching. It must cover the major and minor psychoses, borderline deviations, account for the feebleminded, and serve the problem child. It must be adapted to the individual community through the reconciliation of community needs, community peculiarities, and accumulated experience. The creation of a community program is a job of individual case procedure.

However, generalized statements about individualizing are not much of a guide or help when it comes to a real situation, unless they can be attached to something. I shall therefore temper this plea for individualization by presenting something concrete, a sort of platform from which to take orderly steps. I have chosen, as my paradigm, the city of 75,000 to 200,000 population. In such a city there is little opportunity for the degree of specialization which exists in larger cities, where there are clinics for adults, court cases, school cases, social agency cases, college students, children, preschool children, retarded children, superior children, and so on. A city of 100,000, in order to get the benefits of clinical and educational work, and the community leadership that comes from an adequately staffed full-time program, must work out a plan including all phases of the job.

Such a community might plan on a budget of $15,000 to $20,000 to develop a working unit consisting of a psychiatrist, psychologist and 2 psychiatric social workers, with a schedule laid out to cover the community needs as outlined above. The essentials of this would be: service to adults, which might consume 2 days a week of this unit's time; service to problem children, which might consume another 2 days, and work with the mental defective the fifth day. These sessions might be held at the same place, possibly under different names,

or they might scatter. It might be that the 2 days for children would be divided; that 1 of the days for adults would be devoted to the neuroses and consultations on cases from other medical services. The remaining half day of the week might be devoted to consultation service with a nursing agency, social service agency or juvenile court, or such consultation services might be given in place of part of the time devoted to adults, children, or mentally defective.

A definite part of such a program should be its educational effort, and this should be a consciously planned thing, not merely the result of chance. It should grow out of the needs for such activity as they are revealed by the cases, and should accordingly be directed toward professional and lay groups. Similarly, growing out of the case work should be a responsibility for community improvement so that those stresses which are contributing to the mental hygiene problems may be attacked as a designated part of the job.

Such a program should have a committee or board sufficiently free of other obligations and of sufficient local standing to govern it, insure its interpretation to and integration with the community, and be able to reveal the community to the clinic staff. It should assume full responsibility for financial stability. Such a board might well be an outgrowth of the group which originally studied the community's peculiarities through a survey.

This skeleton of a program for a city of 75,000 to 200,000 should provide a useful point of departure for the city that is either larger or smaller. The city of 200,000 could well afford to specialize to the point of providing a full-time unit for children, and a city twice that size would probably find that besides a community unit, a public school or juvenile court unit would be a logical direction of growth.

The city under 75,000 would have more difficulty because of the necessity for getting part-time personnel. However, there is already justification for considering partnership between smaller cities whereby the benefits of the larger support can be secured. Such partnership may be worked out between a small city and an institution or university. Much of the promise of the future, however, lies in the participation of the state in the program of the small city and rural district. The state hospital is particularly strategic in serving this part of the population which, it must not be forgotten, includes 75 per cent of the whole.

A psychopathic hospital or a university is similarly able to aid a mental hygiene program in the smaller community, and in some instances state departments of health, education and welfare have demonstrated their possible contribution. The construction of a program

for the smaller community requires the reduction to a minimum of makeshift and irregularity, careful attention to follow-up, and the evaluation and utilization to the utmost of local capacity for participation. I hesitate to say much about program planning for the small community for we are just now bringing together the experiences of the states which have experimented along these lines. Two field workers are spending a year and a half studying existing programs to draw therefrom elements that may be of value as accumulated experience.

One of the most valuable beginnings for a community wishing to make a start in a mental health program is the securing of a visiting teacher for the public schools, and I recommend serious consideration of this.

In conclusion, may I again express the hope that any who may have been looking for a formula may, in place of it, achieve a viewpoint that will result in an individually conceived, and therefore more appropriate, plan for mental hygiene service to a community.

Dental Caries

IN an Interim Report, the Medical Research Council has given an answer to the second of two questions which it is considering:

"(*b*) Can the incidence and rate of progress of caries in teeth already erupted be lessened by the adoption of similar dietetic measures?"

1. In groups of children, numbering from 65 to 86, living under similar institutional conditions, each group receiving a certain specific addition to the standard dietary, over a period of 2 years, the progress of caries in the permanent teeth has been significantly retarded in those children receiving an added ration of fat-soluble vitamins as compared with those whose additions consisted of treacle and olive oil respectively; the increase of caries in the vitamin group, whether measured by its incidence or its extent, being approximately one-third of that in the other groups.

2. In two groups of children, numbering 82 to 79 respectively, living in the same institution under identical conditions, each receiving as an addition to the standard dietary a measured ration of olive oil, to which in the case of one group a solution of vitamin D was added, over a period of 1½ years, the progress of caries in the permanent teeth was also significantly retarded in the vitamin group as compared with the group which received olive oil as the only addition.

3. When allowance is made for the shorter period of the second as compared with the first investigation, a general similarity is observable, in the rate of increase of caries, between the group receiving cod liver oil (vitamins A and D) and that receiving radiostol (vitamin D).

4. There was no significant difference in the rate of increase of caries between the children receiving olive oil and those receiving treacle, in the first investigation.

—*Special Report Series, No. 159,* by the Committee upon Dental Disease, Medical Research Council, 1931.

British Public Health and Its Present Trend*

GEORGE. F. BUCHAN, M. D., M. R. C. P., D. P. H., HON. F. A. P. H. A.
Medical Officer of Health, Willesden, England

IT is difficult to say when public health began, but it is probably as old as communities. The need for communal action for the protection of the public health has no doubt been realized because of the ravages of epidemic disease. It is probably beyond dispute that the Black Death in Britain in the 14th century and the Plague in London in the 17th century have been important influences in the development of British public health.

Public health assumed a definite form in Britain during the 19th century, and it is interesting to note that it has extended with every extension of the franchise. In Britain there have been four great extensions of the franchise, in 1832, 1867, 1884 and 1918. Following the extension of the franchise in 1832 the reform of the Poor Law began in 1834 and reform of Local Government in 1835. These changes were followed by the passing of the first Public Health Act in 1848. The next extension of the franchise in 1867 was followed by the Public Health Act of 1875 which still remains in England as the health charter of the people. The extension of the franchise in 1884 was followed by further reforms of Local Government in 1888 and 1894. These local government reforms created county councils and placed certain definite public health responsibilities on other local authorities, particularly the urban and rural district councils. The last great extension of the franchise was in 1918, when the number of parliamentary voters was practically trebled and for the first time included women. This last act of enfranchisement was followed by the Local Government Act of 1929 which indicates the present trend of public health administration in Britain.

In spite of much legislation during the present century it is nevertheless true that the Public Health Act passed in 1875 is still the most important public health measure on the Statute Book in Britain. This Act deals with environmental hygiene, with the protection of the pub-

* Read before a Special Session of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

lic against unsound food, with infectious diseases and the establishment of infectious diseases hospitals, while it gives to the Minister of Health power to make regulations for the control of infectious diseases. It is under this Act that in recent years health authorities in England have been required to deal with tuberculosis, venereal diseases, ophthalmia neonatorum and puerperal pyrexia. It is also under this Act that local authorities may maintain general or special hospitals. But when all is said and done the Act of 1875 has been mainly used to deal with environmental conditions as they affect health, and with measures for the protection of the public against the spread of infectious diseases.

It was not until the beginning of the present century that a more personal view of public health began to be taken. In 1902 the first Midwives Act was passed. This Act seeks to protect the woman against unskilled attention at confinement. It requires that every woman practising midwifery should be trained and certificated according to a standard laid down.

In 1907 the first Notification of Births Act was passed. This Act has for its object the early notification of births so that advice and help may be given early to mothers on the healthy upbringing of their children. It was at first subject to voluntary adoption by local authorities, which is a common procedure in Britain when a measure is to be tried out. Later in 1915 Parliament made this Act compulsory on all authorities. The next development of personal hygiene was also in 1907, when the Act requiring provision to be made for the medical inspection of school children was passed. This Act while embodying a compulsory provision regarding medical inspection embodied a voluntary provision with regard to treatment. This voluntary provision was subsequently made compulsory in the Education Act of 1918.

In 1911 another important Act dealing with the care of the individual was passed, namely, the National Health Insurance Act. This Act compelled those persons mentioned in the Act—generally speaking, persons with an income of less than £250 per annum—to insure under a State Scheme. Among the benefits conferred under this system of State Insurance was medical benefit, i.e., general practitioner treatment. The National Health Insurance Act can hardly be said to be preventive in character although there are some rarely used provisions in it which have been conceived on a preventive basis. The Act however is of great importance in that an insured person is able to secure treatment immediately he becomes ill without additional expense to himself. This Act was also instrumental in initiating schemes

for dealing with tuberculosis which have since become applicable to the whole community.

In 1918 a further step forward was taken by the State in respect to the care of personal health. In this year the Maternity and Child Welfare Act was passed, enabling local authorities to establish, subject to the approval of the Minister of Health, schemes for the care of expectant and nursing mothers, infants, and young children, and it is under this Act that practically all the maternity and child welfare work in Britain is being carried out.

UNIFICATION OF CENTRAL AND LOCAL AUTHORITIES

It will be readily understood that as these various measures for the protection of the health of the public were being rapidly passed by Parliament, the necessity for some State supervision of their working became more and more apparent. The result was that in 1919 the Ministry of Health was established by Act of Parliament for the purpose of controlling all functions of the State relative to public health and the State practice of medicine, whether preventive or curative. With this concentration of the medical and public health functions of the State in a single Central Health Department, the need for concentrating the public health functions of local authorities in a single local authority for each area became equally apparent. Toward this end the Local Government Act of 1929 has taken a step. This Act abolishes boards of guardians under which the Poor Law system of medicine has developed in Britain, and transfers all the functions of boards of guardians to county boroughs and county councils. This transference has been made in order that county boroughs and county councils at a later date may incorporate the old Poor Law system of medicine with the public health system of medicine in operation in their areas. This Act came into operation in 1930, and it doubtless will have a very important bearing on public health progress in Britain.

THE LOCAL GOVERNMENT ACT, 1929

The main provisions of the Act may be conveniently discussed under four headings:

1. *To Improve Local Government*—The Act seeks to establish that local governing authorities shall be large enough to look after themselves. The Act also enables steps to be taken by which in the long run there may be only one local health authority in any area and not two or three as at present. This ultimate issue will depend largely on the wisdom and vision of the county councils entrusted with very large powers under the Act. The Act if well administered should pave the way for the general establishment of county borough health administration throughout Britain. The county boroughs vary in population from about 25,000 to over

1,000,000, and the county borough council in each of these areas is required to administer all local public health services. In Scotland but not in England this includes mental health. This reduction in the number of local health authorities and unification of their powers should make for a rapid extension of public health work.

2. *To Extend and Improve Hospital Accommodation*—In connection with any extension of public health work the importance of the hospital is becoming more and more apparent. If a local authority decides to establish a clinic for the early diagnosis and treatment of cancer, hospital beds are necessary. Similarly, if it decides that the rheumatic child should have attention, beds are again necessary. Like statements may be made about all the most recent advances in public health administration. It would therefore appear that for the proper development of public health work easy access to hospital beds is essential.

Prior to the operation of this Act there were in England and Wales the voluntary general and special hospitals with 50,000 beds, which still remain as such; the Poor Law general hospitals with 120,000 beds, which have now been transferred to county boroughs and county councils and have become the municipal general and county council general hospitals; and the special hospitals of local authorities for tuberculosis, infectious diseases, maternity, and so forth, with 60,000 beds. It will therefore be observed that there now exist in England and Wales 50,000 voluntary hospital beds under voluntary management and 180,000 municipal or county council hospital beds under public management.

It is provided in the Local Government Act, 1929, that extension of any of these hospitals in any area should take place only after consultation between the voluntary and public managers of hospitals in the area. Hitherto the voluntary hospitals have been the teaching hospitals and I am hopeful that the coöperation between hospitals which the Act seeks to secure, will lead to a greater utilization of the public hospitals for teaching purposes. Such a result would be in every way beneficial. It would provide more material for the student and particularly would tend to uplift and improve the personnel of the staff of the public hospital.

3. *To Make Public Health Available for the Whole Community Irrespective of Poverty*—This has been done by abolishing boards of guardians who previously administered Poor Law medical work and transferring their duties to the public health authorities. This transference of duties includes vaccination, domiciliary medical attendance for persons in receipt of Poor Law relief, and the maintenance of Poor Law hospitals. The public health authorities are further enabled to declare that all assistance provided by them is provided otherwise than by way of poor relief.

4. *To Maintain Health*—The Local Government Act introduces a further element into the matter of the maintenance of health. Under the Act local authorities receive block grants for many purposes, including health, and it is expressly stated that these grants are given on the definite understanding that a reasonable standard of efficiency and progress in the discharge of public health functions will be maintained by the local authority. It is further stated that the Minister of Health has power to reduce these grants if the health of the community or any section of the community is endangered or likely to be endangered by any action or want of action by the local authority. It will therefore be seen that there is a definite financial stimulus given to local authorities to do all in their power for the health of the communities they control.

It may be suggested that these very large provisions and concentrations in respect of public health and medical work made by the Local Government Act of 1929 are likely to lead to a state medical service. I should not be at all surprised if this were the result so far as the hospital service of the country was concerned, for it will be seen that the vast majority of the hospital beds in England is in the hands of the elected representatives of the people.

On the other hand the Local Government Act of 1929 does not interfere with the National Health Insurance Acts under which panel practice is conducted, the essential element of which is the private medical practitioner. Some 15,000,000 insured persons are catered for by some 15,000 doctors who are under contract to render treatment of a kind which can, consistently with the best interests of the patient, be properly undertaken by a general practitioner of ordinary professional competence and skill. This form of practice is in a sense a private medical practice in so far as there is free choice between doctor and patient, but it is also in a sense a State medical practice as part of the payment for the medical practitioners comes out of State moneys. As it stands the service is mainly, if not only, a general practitioner service and its extension, although it has been considered, has not matured. Extension is needed in respect of consultant and specialist services, a hospital service, a nursing service, and laboratory facilities for diagnosis and treatment.

The service and its projected extensions are concerned only with the cure of disease. Some insurance medical practitioners, however, are turning their attention to the prevention of disease. They are endeavoring to reduce sickness by the education of their panel patients in health. The patients are encouraged to seek the advice of their panel doctor as to how to keep well, to come to him without delay as soon as they feel unwell, and to undergo regular periodic overhauling at other times. In this way the doctor and patient coöperate toward the detection of disease in its early stages and the prevention of disease and the maintenance of health. The doctor recognizes that it is to his advantage to have no ill patients on his panel.

It may be that generations may elapse before a whole-time State medical service is established, if at all, but it is well to observe that the private doctor is being pressed increasingly into the service of the State. The bulk of general medical practitioners hold no office of profit directly under the Ministry of Health or local health authority but various Acts of Parliament place certain statutory obligations upon them. A general medical practitioner is liable under Statute in the following respects:

1. He must notify births within 36 hours.
2. He must certify stillbirths.
3. He must certify deaths.
4. He must notify cases of infectious disease.
5. He must notify cases of industrial poisoning.

In addition he may be called upon to perform any of the following duties:

6. To act as an insurance practitioner.
7. To provide medical assistance and treatment for the poorer inhabitants of the district in which he lives.
8. To act as a public vaccinator.
9. To act as certifying factory surgeon.
10. To certify insane persons.
11. To certify feebleminded persons.
12. To act in an emergency when called in by a midwife, and from time to time to give certificates relative to the removal of infectious cases to hospital, disinfection, removal and burial of dead bodies, etc.

As a result of all these changes and State duties the general medical practitioner in England is becoming more and more alive to his responsibilities as a State medical practitioner. The importance of the prevention of disease is now taught him as a student on every possible occasion throughout his medical course. More recently the importance of public health as a subject in the medical curriculum has been considered. Public health was previously a subject relegated to a second place in most medical schools but is now receiving increasing attention.

THE TREND

I have indicated what are likely to be the immediate fruits of the Local Government Act of 1929. But to my mind what is most important about this Act is that it shows that the nation is conscious of the need for health and has declared for a policy of health. It is likely that this conscious declaration of policy by the government and local authorities will do more to stimulate public health progress than the passing of the Local Government Act itself.

One of the first results of the working of the Act will be that the government which already plays a part in promoting research will play an even greater part in the future, and that local authorities in England which do little if anything by way of research will be stimulated through the hospitals, and laboratories, and field work that they control, to take their share in this important development, for it is on the findings of research that all medical and public health progress is made. In Scotland a Scientific Advisory Committee on Medical Ad-

ministration and Investigation has been set up to advise the Scottish Board of Health. When the huge number of deaths per annum from heart disease, respiratory diseases, cancer, tuberculosis and diseases of the nervous system are remembered, it will be seen that there is much work for such a committee to do.

I have outlined to you what the present trend of public health in England is, but I am quite sure that the public whose consciousness of the need for health has been thoroughly aroused and whose elected representatives are acting with definite intent to secure health for the people will ask of the medical profession—"What must we do to be healthy?" It is, after all, that question which we who are the health advisers of local authorities must prepare ourselves to answer.

It is at this point that we turn to the physiologist and tell him that he must advise us as to what normal life processes are and as to the conditions under which they may be maintained. We appreciate that the earlier in life correct habits of living are inculcated the better and stronger and more resistant will be the adult product. It was for this reason that maternity and child welfare work was begun. It is true that we have antenatal clinics, but these clinics are designed more with the idea of protecting the mother in childbirth than of trying to secure that the child when born has been properly nurtured in the mother's womb. This conception of an antenatal clinic must be realized, for the processes of nutrition are profoundly affected during the antenatal period and in early life and good feeding and habits in later life will not wholly compensate for errors in the early stages.

We must come back to a study of the various processes of nutrition and learn the way of health. We must make an endeavor to recognize the essential processes which will make for healthy living, and ask the physiologist to become definitely a public health worker.

Recently a committee in England has been set up to advise the Minister of Health on how the recent advances in the science of nutrition can be best utilized in the interests of public health, and that committee is at work. It does not hope to accomplish the ideal of planning good health and continued good health for everyone, but I am quite sure that it will do something toward that end.

The Relation of Public Assistance to Public Health in England*

SIR ALLAN POWELL, C. B. E., HON. F. A. P. H. A.

Chief Officer of Public Assistance of the London County Council, London, England

FOR over 30 years I have been concerned with that section of public health administration in the County of London which is related to the provision and maintenance by the Metropolitan Asylums Board of public hospitals for infectious, children's, and mental diseases. Two years ago, however, when the work of the board was transferred to the London County Council, I entered on another phase of public work and undertook the organization and management of the new department formed by the County Council to take over the public assistance duties of the 25 separate boards of guardians of the poor till then functioning in London.

Public assistance in its widest meaning may be held to include all those services for the individual the cost of which is wholly or partly borne by public funds, i.e., national taxes and local rates. It includes the provision of houses, maternity and child welfare, education, unemployment pay, and the maintenance of health; it touches the life of the individual at almost all points from the cradle to the grave, and vast sums are spent on these services. I am using the term, however, in the more limited sense in which it is generally understood—the relief of destitution.

This considerable change in the orientation of my activities has enabled me to survey the familiar questions of public health from a new point of view. It is very stimulating to examine a well known landscape from a different standpoint and in a new light, and I trust that my first impressions of public assistance and my new reflections on public health will be of some interest and value to you in considering problems which, as I gather, are likely to command increasing attention in the United States. I say this because the question of public assistance in your country appears to be coming into the field of current political thought and will, therefore, thrust itself to an increasing extent into your affairs as administrators of public health.

---

* Read before a Special Session of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

Going from public health to public assistance as I have done, arouses at once a very strong feeling of travelling from a country which is comparatively new to one very much older, and necessarily much richer in history and traditions—some such feeling, in a sense, as is aroused in an American on his first visit to Europe. Let me give you an instance straight away. I undertook my new office at the beginning of 1930 and I found that the Act of Parliament with which I was mainly concerned was The Poor Law Act, 1930. The key section of that Act and the duty of the local authorities is as follows:

Section 15 (1) (a) (b)

To set to work all such persons, whether married or unmarried, as have no means to maintain themselves, and use no ordinary and daily trade of life to get their living by.

To provide for the necessary relief of the lame, impotent, old, blind and such other among them being poor and not able to work.

There is a rhythm and a style in the language which makes it completely different from the phraseology of modern statutes. You may possibly be reminded of the pleasant sensations that you enjoy when you raise to your lips a glass of '60 port, or of Napoleon brandy, if such a simile may be permitted in this assembly. If you are connoisseurs of literature you will no doubt say that that clause can only have been written at some time earlier than Milton and later than Sir Thomas Moore. The clause is, in fact, a quotation from the great 43d Act of Elizabeth and is dated 1601. The law of public assistance in England today is, therefore, in its basic elements the law instituted by the wisdom of Queen Elizabeth's famous group of councillors, among whom were men like William and Thomas Cecil, Francis Bacon and Edward Coke, whose fame is still familiar to the modern world.

While, however, public care for the health of the individual had its origin in Tudor times with public provision for the relief of destitution, its development is essentially a matter of the 19th century and after. It is true that a Mayor of Nottingham was presented at a Court for sundry misdemeanors in 1512 for starting a muck hill, and that Shakespeare's father was fined in 1552 for throwing rubbish into the street, but that was under local manorial bye-laws and neither the Queen's Ministers nor Parliament, though deeply concerned with the poor law, were called upon to consider any public measures dealing with sanitation.

Until the 16th century, the relief of indigence, including the care of the sick poor, was adequately provided by the various corporations that existed within the church, such as hospital foundations, almshouses and the services provided by monastic establishments. It was

ordained by Kings before the Conquest that the poor should be sustained by parsons, rectors and the parishioners "so that no one shall die for lack of sustenance." The primary effect of the reformation, however, was to make the Church in England into the national English church and it followed that the organization of help for the poor became a matter for the national government. This is why the legislature at the end of Queen Elizabeth's reign passed the Act already referred to which commanded the local parochial units to raise funds and appoint officers for providing relief for poor persons who were not able to work and for the sick. There seems little doubt that the function of the central government was to secure the passing of laws and that it had no regular machinery for controlling local administration. The actual provision, therefore, for the sick and poor continued to be a parochial affair, and there were naturally great diversities of treatment, ranging from many admirable experiments down to many grave abuses.

Relief given was necessarily either institutional or domiciliary. In the case of sick people, institutional care was usually provided in the mixed workhouses. If the sick could be looked after in their own homes, they were attended and "physicked" by the parish doctor.

Perhaps the most significant of the changes made by the great Poor Law Amendment Act of 1834 was the establishment for the first time in English local government of the principle of central executive control over local administration, or, in other words the institution of a central body and the appointment of inspectors, thereby converting the administration of the poor law into a function of the national government. The local units of administration were inevitably and properly retained for a service which is intensely local in its incidence, but it was found that the drastic reforms necessary and the maintenance of an adequately high standard of administration required the direction of a central authority.

After 1834 there arose a noticeable appreciation of the extent to which poverty in many cases was dependent on health. The Poor Law Commissioners reported that

> . . . prominent and pressing were the means of averting the charges on the poor rates which are caused by nuisances by which contagion is generated and persons are reduced to destitution. All epidemics and all infectious diseases are attended with charges immediate and ultimate on the poor rates . . . the amount of the burden this produces is frequently so great as to render it good economy on the part of the administrators of the poor laws to incur the charges for preventing the evils where they are ascribable to physical causes.

As a result of this changed outlook, to which impetus was given by the humanitarian reaction following the evils consequent upon the indus-

trial developments and the uncontrolled movement from country to town during the first quarter of the century, the Royal Commission which led to the passing of the Poor Law Reform Act of 1834 was followed by another Commission on the Health of Towns and Populous Places. This body reported in 1845 and there followed the passing of the first Public Health Act of 1848—the "ground work of sanitary legislation." The movement owed its initiation to the same group of thinkers and administrators, of whom Bentham and Chadwick were the best known names, which had inspired the reform of the poor law. Not unnaturally the leading feature of this change was the institution for public health also of a central authority, which from the beginning took and kept a leading part in the development of public sanitation. The local sanitary work was entrusted to the town councils and thus began another local and independent health service working on very different principles from those inspiring the ancient poor law services.

Unlike the poor law board, the central public health authority came into existence not to reform what was already there but to create a new thing. This different attitude has persisted until today, and I think that on reflection we shall find that this is necessarily so. The demand for public assistance grows up from below, but public sanitation has to be imposed from above. To put it in a very homely way, if a man is hungry he asks for food, but if he is dirty he has to be told that he ought to wash. The dirty man who asks for a bath is the product of an educational process which has been initiated from above. To take an even more homely example, it is a common experience that the small male animal of the human species readily displays his willingness to eat as much as he can get, but one of your own cartoonists has impressed on us the truth that small boys display a remarkable ingenuity in delaying or avoiding ablution.

To revert to a more official statement of the position—the central authority has found it constantly necessary to restrain local units of government from giving public assistance too freely, whereas a central authority has constantly had to stimulate local units of government to show more activity in providing sanitary services, and for some decades now it has been the custom of Parliament to make percentage grants from public funds toward the expenditure of local authorities in order deliberately to encourage such local authorities to spend more and more on public health.

You will have observed that hitherto I have spoken of public health as the equivalent of public sanitation and that, apart from the cure of the destitute sick, was its content, but, by 1875, England was thoroughly educated in the appreciation of sanitation. Disraeli was

able to make the epigram when he introduced his great Public Health Act of 1875 "*Sanitas sanitatum, omnia sanitas.*" Englishmen were wont with no little complacency to boast about their Doultonware, the evangelizing qualities of Pear's soap, and the triumphs of the plumber's science in our cities and towns. Public health at this time was indeed largely a matter of pipes. Pipes to bring clean water, drain pipes and sewage pipes performing their unseen cleansing tasks, and large tubular pipes in the form of chimneys to cast in the face of an affronted heaven the black clouds of smoke that were the celestial sign of our abounding industrial prosperity.

Since the beginning of the twentieth century, however, public health administration has extended its scope very widely beyond the limits of sanitation as ordinarily understood. Instead of being mainly concerned with all those measures, multifarious as they are, which are necessary to prevent infectious diseases and other menaces to the health of the community, public health administrators are reverting to the first conception and are becoming more and more concerned with the personal health of individual members of the population. An example of this shifting of the point of stress is shown by the fever hospitals of London which were provided in order to isolate persons suffering from infectious disease, with a view to checking the spread of such disease throughout the city. A continuous and candid examination of the facts, however, revealed that such isolation did not really affect the spread, or otherwise, of the disease and that the provision made was really fulfilling the service of giving to each individual sufferer the care and cure which he would have found it difficult to obtain in his own home without such public aid. The Metropolitan Asylums Board, therefore, led the way in providing what the Webbs in their *English Local Government* describe as the magnificent hospital system which afforded treatment for individuals who were suffering from diseases requiring the specialized knowledge and equipment which could only be provided by a large authority working on progressive lines.

What was described by the Minister of Health responsible for the measure as the greatest change in English local government for 100 years was brought about by the Local Government Act, 1929, which came into force on April 1, 1930. References to various aspects of this great measure from different angles will no doubt be made by my British medical colleagues at this meeting. It is enough for me to point out that it swept away the boards of guardians of the poor and handed over practically all their duties to the county and county borough councils. The most difficult and thankless of these duties was undoubtedly the granting of domiciliary or outdoor relief on other

than health grounds, especially to the able-bodied, a problem which appears merely to increase in difficulty with the passage of time. That part of the change with which public health administrators are concerned is the one which for the first time brought the two public medical services under one control in each area. In London (and generally throughout the country) the Public Assistance Committee of the Council is charged with the relief of destitution and the Public Health Committee with the management of the hospitals and with the control of all medical and nursing working. The principal points of contact are (1) in the provision of domiciliary medical relief, and (2) in the arrangements for the admission of destitute patients into hospital.

The county is divided into districts, each with its district medical officer who is for the most part a general practitioner in the neighborhood and whose duties involve attending the destitute patient in his home or at the medical relief station or dispensary of the district. The district sub-committees administering relief, of which there are 74 in London, receive the reports and recommendations of the district medical officer in all cases of persons receiving out-relief requiring medical attention and special care or nourishment in their homes. In the case of able-bodied men who as a condition of receiving out-relief are required to attend work or training centers, an examination by the district medical officer is a necessary preliminary to such attendance. In London the number of visits to the homes of patients paid by the district medical officers in the year ended September, 1930, was 60,000 and the number of patients' attendances at medical relief stations was about 230,000. In the whole country there are some 4,000 district medical officers.

With regard to the hospitals provided out of public funds, these, up to the 1930 change, had been almost entirely established by the guardians of the poor, and in modern times the sick wards of the general workhouses had developed in many parts of the county into first class hospitals. Even with the hospitals of the Metropilitan Asylums Board in London, it is true to say of every disease admissible that the admissions started with and were limited to the destitute class and that in the natural order of things it was found necessary to make the need for treatment rather than lack of means the basis of admission, and the legal limitation on admission was removed.

It was scarcely likely that public opinion would rest content in the case of the guardians' hospitals that a relieving officer's certificate should be the open sesame and that destitution should be the sole qualification for admission. So in these hospitals too, the necessary qualification of destitution had for a long period been so widely in-

terpreted that it included many who would have been excluded by a strict application. With the Act of 1930 came the transfer of all these hospitals to the county and county borough councils, and this naturally means the transformation of the guardians' hospitals into municipal general hospitals and the opening of their doors to the general public. The London County Council is now responsible for some 100,000 beds of all kinds and the individual citizen, therefore, has a wide range of public resources from which to draw—not only for infectious and mental diseases but also in respect of what the ancient Greek would have called his "self-regarding" necessities.

It is not unnatural that, when charitable people provide something that is really very good with the intention that it shall be used for the very poor, the ultimate fate of such good things is to be used by better-to-do people who have the intelligence and energy to appropriate them, and it is often said that this has been the fate of some of our most ancient educational foundations. This process should be less facile with public control, but it will need the vigilance of the local authority to insure the observance of the right of prior admission which the Act of 1929 gives to the destitute poor for whom the hospitals were first provided and by whom they have so far been filled. At the same time it will have to meet the new demands from classes ranging above the poverty line, certainly up to the lower middle classes, which need ampler hospital facilities. In a word, we have to reconcile the view of the President of the English Society of Medical Officers of Health of last year who wants "to get and cater for the respectable, independent, middle, or lower middle and working classes who cannot afford the private nursing home and do not like charity" and that of the late Lord Knutsford, one of the outstanding figures in the English hospital world to whose personality is very largely due the re-creation of the London Hospital with its 800 beds, flourishing medical colleges, laboratories, nursing training school and so forth. Lord Knutsford died in the hospital and the comment was widely heard that this was a fitting end. But when the surgeons insisted on his removal to hospital he made the characteristic reply "The hospital is for the sick poor and not for the likes of me."

Very closely linked up with this question is that of payment according to means for hospital treatment. The old poor law regarded the family as a unit and provided that

> . . . it shall be the duty of the father, grandfather, mother, grandmother, husband or child of a poor, old, blind, lame or impotent person or other poor person not able to work if possessed of sufficient means, to relieve and maintain that person

and the authorities were entitled to obtain orders of maintenance

against the liable relatives. This right to recover from liable relatives the whole of the expenses of maintenance, or such part as in the opinion of the authorities they are able to pay, is renewed in the Act of 1929. The London County Council have taken the view that the duty of assessing and collecting contributions from those who receive

> . . . services rendered or relief granted out of rates or taxes to an individual or family upon an examination of the economic or other circumstances of their case, including relief in all forms, maintenance and treatment in hospitals and institutions (except for infectious disease)

shall be concentrated in a single department and that the Public Assistance Department. This may seem to run counter to the views of those who claim that the change was intended to depauperize sickness and remove the stigma of pauperism by which is meant the interposition of the relieving officer and inquisition as to means. But a change of words does not involve a change of things, and any limitation as to means put on admission to the hospitals must involve the ascertainment of the facts. Similarly, whatever officer has the duty of ascertaining the facts and collecting payment, will have to make inquiries similar to those now made by the Public Assistance Department and will be no more popular than any other official who has been charged with those duties in the past. I doubt whether the stigma of pauperism lies in the fact that inquiries as to means are made, nor in the particular title of the officer making the inquiries. A more fundamental reason must be found, and I think it lies in the fact that until recently the only people who received that form of state assistance based on the ascertainment of needs, which was called poor law relief, were a limited number of the very poorest of the community, the class which included the dirty and ignorant, the ill-mannered and depraved. The "paupers" were a class apart from the rest of the community, losing all links with normal life and, if in institutions, they were known by their apparel. They were regarded as a class to be deterred and the spirit of deterrence even entered into the question of medical needs.

The idea of stigma, aged and deeply rooted, cannot therefore be wondered at, but the public attitude toward poverty has greatly changed. In the first place the numbers of necessitous persons are actually and relatively so much greater that they cannot be regarded as a separate class or as abnormal cases. Recourse is had to relief just as to other forms of social assistance, and the principle of deterrence is now less openly proclaimed, if not forgotten.

The transfer of the poor law services to an elaborate organization of government such as the county councils means the administration of what has for centuries remained essentially a separate service in con-

junction with other services of more recent origin destined to meet requirements which are the product of an ever increasing complexity of social organization. The reorganization of public assistance in cooperation with these other services should enable it to become more scientific in method and constructive in purpose than in the past, and in no branch of public assistance more than on the medical side.

I will close by touching very briefly one or two other considerations affecting public assistance and public health. In industry by rationalization and by the trend toward public utility companies, in the home life by the increasing volume of public services paid for by public funds, the tendency is to supplant individual by communal effort. The spirit of deterrence which marked the old poor law was perhaps the offspring of individualism in its extreme form. Benjamin Franklin when visiting London in 1766 said

> . . . The day you passed that Act (43 Elizabeth) you took away from before their eyes the greatest of all inducements to industry, frugality and sobriety, by giving them a dependence on something else than a careful accumulation during youth and health for support in age and sickness. I think the best way of doing good to the poor is not by making them easy in poverty, but leading or driving them out of poverty. In my youth I travelled much and I observed in different countries that the more public provisions were made for the poor, the less they provided for themselves and of course became poorer . . . There is no country in the world where so many provisions are established for them, so many hospitals, so many almshouses . . . in short you offered a premium for the encouragement of idleness and you should not wonder now that it has had its effect in the increase of poverty.

If, as I think is true, the stigma of pauperism is dying out it is not because there is less but because there is more recourse to public assistance in one form or another and because the vast and rapid extension of public assistance in forms other than poor relief indicates a fundamental change in the relation between the state and the individual. That the developments in question were themselves inspired by a desire to prevent "pauperism" cannot disguise the fact that they make substantial calls on the public purse under various names while the sanguine hope expressed at each successive stage of social amelioration that poor relief would be *pro tanto* successively reduced, is not yet realized.

The problem of how the community is to provide for the needs for which the individual cannot provide, and which the public conscience demands should be met, without creating a universal spirit of dependence and stimulating the demand for public assistance by each new provision of it—without, in other words, yielding up the freedom of a strong and virile people—was never more insistent on the attention of the man in the street and of the statesmen in the cabinet than in the

present day. In the solution of the problem, public assistance and public health administrators can in coöperation play a large part. The public assistance side has, perhaps, the less popular rôle of emphasizing that the family unit is still the prime factor in our social structure; that running through all our social legislation in the past has been the theory that it is the duty of the family to help any member who falls into need or distress of any kind; and that this is true of sickness as of any other of the hardnesses of human life, against which the family is the natural protector.

If public assistance tries to preach economic wisdom, it will not, it is true, receive the applause of the market place but it may deserve the approbation of the judicious. I notice with great interest that the charitable social work which in many parts of the United States fulfils the function of the English poor law is carried out by societies which use the title of Family Societies, and that the gentlemen in the United States who may be said to correspond with the English relieving officers, are known as Family Rehabilitation officers. I must admit that we should want some acclimatizing even to the modest addition of "F" to the familiary initials of "R. O."; but behind the question of title there lies again the principle that public assistance administration should follow up all the numerous channels through which state and municipal help and specialized treatment are given to individual members of family groups and should still hold before each family the sense of its corporate existence and the idea of mutual help and independence.

Public Health Service in Britain
Education and Training*

CHARLES PORTER, M. D., HON. F. A. P. H. A.

Medical Officer of Health, St. Marylebone, London, England

THE orientation of the public health organization in Britain is more definitely medical than is the case perhaps anywhere in the universe. Even before it was solidly established by the Public Health Act, 1875, and the medical character firmly and legally was conferred upon it, the intention that it should be so was clearly shown. Numbers of sanitary and health bodies throughout the country, conspicuously in London and Liverpool, recognizing this intention, early in the 19th century appointed medical officers, the example they set being followed soon by others. In the Acts of Parliament empowering such appointments references were made to non-medically qualified officers—surveyors or engineers and inspectors of nuisances or sanitary inspectors. In spite of this, however, and the outstanding importance of the work that experts in engineering and such like matters could perform at that date, the view apparently taken was that the assistance really required was such as could be provided by individuals trained and qualified in medicine. When the Act of 1875 came into operation no room for doubt upon this point was left.

THE MEDICAL OFFICER OF HEALTH

The authorities declared responsible for health conditions in the various parts of the country—named by the way "sanitary authorities" in this connection—had specifically imposed upon them the duty of appointment, first and foremost, of a person fit and proper to be a medical officer of health, and secondarily others, also fit and proper, to be inspectors of nuisances, surveyors, etc. Going further, the Act laid down certain provisions with regard to the qualifications of the medical officer of health, forbidding at once the appointment of any person to the post unless a legally qualified practitioner.

At this time there was no call for any particular qualification in the case of the other officers mentioned, i.e., the inspectors and the sur-

* Read before a Special Session of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

veyors. For that matter there was not then any actual reference to qualifications additional to those usually possessed by medical practitioners in the case of the medical officer himself. Various of the universities and medical schools, however, recognized the need for additional training and set about providing it, with, at the end, the inevitable examination and a degree or a diploma conferred upon such as complied with the rules of the teaching bodies and satisfied the examiners. The object of the teaching and examining bodies was, avowedly, to assist the government and the local sanitary authorities and in due course this was so very definitely recognized that there was introduced into an act of parliament having specific reference to local government (The Local Government Act, 1888) a provision that in no county or district with a population of 50,000 or more shall a person act as medical officer of health unless he has held certain offices, or in addition to a medical qualification holds and is legally qualified and registered as the holder of a diploma in sanitary science, public health or state medicine.

These expressions were used for the reason that the qualifications offered by the teaching and examining bodies were a doctorate in state medicine, in the case of London University particularly, a bachelorship in the science of public health (University of Edinburgh, Glasgow, etc.), and a diploma in public health by various examining bodies and universities.

The qualification being a registrable one the matter became a concern of the General Medical Council of Great Britain, and in due course this body laid down, and from time to time since has revised and amended, certain rules regarding the teaching and examining of persons for diplomas designed to secure that there shall be registered only such diplomas as are granted under conditions of education and examination satisfactory to the council.

EXAMINATION FOR QUALIFICATION

These examinations for degrees or diplomas in public health are not state affairs; nor are they conducted by or under the auspices of a civil service commission. The General Medical Council is, however, a statutory body and wonderfully powerful so far as regards the enforcing of any rules it may lay down upon institutions and bodies that set themselves up to provide education or carry out examinations. The approval of the council must be secured by those who teach and they must provide at least the minimum amount of instruction prescribed. The examining bodies must also comply, and the examinations they conduct are open to supervision and from time to time are supervised by representatives of the General Medical Council.

One of the advantages which this system appears to possess over the civil service commission examination is that the candidate is tested not merely for an appointment but to discover if the degree of his training and education is sufficient to justify certification of fitness for engagement in the work of the position. A prominence, therefore, it may be presumed is given to the training and education; and those concerned in examining, as well as those engaged in attending to the teaching, are encouraged to make improvements and to look for directions in which advances may be made. In Great Britain certainly, there have been such effects upon the two bodies named. Upon the General Medical Council, the body dictating to the others, there has been an effect of stimulation also, as shown by the frequency with which rules have been revised, always in the direction of increasing the stringency, requiring a higher and higher degree of efficiency in the teaching bodies, of the students attending the courses, and in the examinations.

EDUCATION AND TRAINING

As a fact, within the space of a comparatively few years such changes have taken place that practically necessitate the devotion by candidates for degrees or diplomas of whole time for a period of 12 months (2 years in the case of degrees) after they have secured a medical qualification and given, at least, 1 year to medical practice.

As showing the readiness of teaching and examining bodies to encourage advance, the case of the London School of Hygiene and Tropical Medicine and the University of London may be quoted. Opened only 2 years ago, the school provides today a course in public health and preventive medicine which, though designed to meet the requirements of the General Medical Council, covers ground infinitely wider than is called for by that body in which there is a coördination of subjects, and among the teachers to a degree not previously attempted in Great Britain certainly, and probably not anywhere else. In the course the attention devoted to field work, though considerable, is perhaps less than in other schools, much more time being given to a consideration and discussion of various aspects of preventive and public health work by specialists engaged in field or research work.

Among subjects dealt with in the session 1930–1931 under the scheme may be noted a series on Psychology by Professor Millais Culpin, recently appointed a member of the staff of the school as Professor of Medical Industrial Psychology; lectures on diseases common to man and animals; on the Laws of Inheritance by Professor Crew of Edinburgh University; on International Hygiene by Sir George Bu-

chanan; on Industrial Hygiene by Sir Thomas Legge, Professor Collis, and others.

The examination provided by the University of London is conducted in such a way as not only to comply with the rules of the General Medical Council but also to place it on a level as high as that reached by the teaching. The qualification awarded is in the form of a diploma, though it may be noted that the university also grants a degree in the shape of a doctorate in state medicine, open to graduates in medicine of the university and holders of the bachelorship of medicine.

EXAMINING BODIES

Apart from the university there is in London an examining body set up jointly by the Royal College of Physicians of London and the Royal College of Surgeons of England.

Outside London the examinations held are conducted by various of the universities. In Scotland, in addition to the universities, there is in existence a conjoint board of the colleges and faculties in Edinburgh and Glasgow similar to that examining in London. Not all of those who take the course of study sit the examination, the number of candidates annually in London alone being somewhere in the neighborhood of 150. Of these, at the first attempt, approximately two-thirds qualify for the degree or diploma.

In the provinces the number sitting is probably much less. Some of those who secure a qualification have no intention of entering the preventive medical service; others seek appointments abroad, and the remainder, the minority it may be, endeavor to enter the home service, competing for the occasional vacancies that occur in the various branches, and those, in the case, at any rate, of medical officer of health posts, must by law be thrown open to all who are qualified, through a public advertisement issued by the appointing authority who selects the person preferred after a series of interviews.

Before the officer can begin to operate, his appointment must be approved by the Minister of Health, the reason for this interference being that some part of the salary of the officer is paid out of central government funds. This is regarded, in the case of the medical officer of health at least, as giving the government a degree of control and making the officer liable to an extent to act in a national as well as a local capacity.

The other medical officers serving in departments and branches of public health and preventive medicine, even though their duties may be largely clinical, are commonly expected to hold the ordinary public

health qualifications. Quite usually they are offered by the candidates, many of whom anticipate securing higher administrative positions. Recently in certain branches additional qualifications or training have been demanded by the minister. To these reference is made later, the intention at the moment being to discuss questions affecting the education and qualification of certain non-medical sanitary health officers.

THE SANITARY INSPECTOR A HEALTH OFFICER

Of these the first to be referred to is the sanitary inspector, partly because the office was created at or about the same time as that of the medical officer of health, with whom he shares the distinction of being statutory. As in the case of the medical officer of health, his appointment is compulsory upon the local sanitary authority, who may only choose a person qualified in accordance with rules of the minister of health, who must also approve the officer chosen.

The sanitary inspector, it is recognized, is an officer peculiarly British, being found in most parts of the Empire. In some countries there exists, I am aware, a feeling more or less of contempt for the type of work that the inspector does or is supposed to do. To my mind, and speaking out of a very considerable experience, this contempt both for the work and the officers can be carried too far. Without hesitation I say that the public health owes a very great debt of gratitude to sanitary inspectors, is still in their debt, and likely so to continue for a very long time. Also I believe those who in Britain linked the inspector with the medical health officer, made his appointment statutory and compulsory, and provided for the imposition of conditions in relation to qualifications, were blessed with vision. The one mistake made was in regard to the name applied to the office, although it is very difficult to suggest an alternative to "inspector," which is the part of the title that appears most objectionable and in general most inaccurate.

At first the requirements imposed in respect of qualifications were a little vague, but as a result of demands on the part of the inspectors themselves for instruction, and a willingness on that of the medical officers of health and other members of local authorities' staffs—engineering, legal, etc.—to provide instruction, the type of qualification required soon came to be recognized. Early in the field in this connection, with the providing of assistance to the authorities so far as the selection of suitable officers was concerned, by arranging for the holding of examinations and the granting of certificates, was the Royal Sanitary Institute. In due course this became the standard qualifica-

tion and throughout the country teaching institutions—the schools of technology, and in some places the universities—arranged courses of instruction for individuals desirous of sitting the examination and taking the certificate which might assist in securing appointment. Actually no qualification was specified by the central authority as essential to insure approval to an appointment made by a local authority, except in the case of London, until after the close of the Great War.

It was hopeless, however, for any individual to expect to be appointed who did not hold the certificate of the Royal Sanitary Institute, with, in addition, educational certificates of various kinds in respect of hygiene, physiology, and technical subjects, such as building construction. With the advances that occurred in connection with public health and preventive medicine, and for which he was to some extent responsible, the sanitary inspector kept steady pace. The grade of man adopting the vocation rose so high that it was found possible to give him greater responsibilities, and to entrust to him work of importance from the preventive point of view; in connection, for example, with epidemiology, food supervision, and so on.

Following such increases in responsibility and improvements in position came a recognition of the need for a qualification more specific and even higher than those already more or less accepted. In the demand for the qualification none were more insistent than the officers themselves individually and through their organizations. In meeting the demand no attempt was made to set up anything in the nature of a state examination. Instead the Minister of Health called upon the Royal Sanitary Institute and a body known as the Sanitary Inspectors' Examination Board which existed for the purpose of examining persons seeking appointments in London to unite and form a joint examination board. Having secured agreement on the part of these bodies, the Minister issued an order declaring no person qualified for appointment as sanitary inspector unless he was the holder of the board's certificate. The drawing up of the syllabus of the examination, the laying down of the conditions governing the examination, and the actual holding of the examination, the Minister left to the board, reserving only to himself the right to nominate a certain number of representatives. No payments out of government funds are made to the board in spite of the fact that the work done is obviously of the utmost national importance.

EDUCATION AND TRAINING

The teaching and training of persons desirous of sitting the examination is carried out in various institutions throughout the country

and in London. The course of instruction offered must be approved by the board, who insist upon a considerable amount of practical training in the field and of specific teaching by medical health officers.

The method of securing appointment as sanitary inspector is similar to that described in the case of medical officers, the supply here being probably even more in excess of the demand.

The Royal Sanitary Institute with the coming into existence of the Joint Board ceased to be an examining body for inspectors' certificates qualifying for appointment in England and Wales. So far as other parts of the Empire are concerned, however, its activities continue to be as extensive as ever. In certain parts indeed they are greater, e.g., in South Africa and in India, where, acting along with the government of the country in question, they set up joint boards and issue the only certificate receiving recognition. In certain provinces of Canada, in Australia, in New Zealand, in Singapore and the East, in West and East Africa, and the West Indies, there are examining boards, all of them in close coöperation with the Council of the Institute in London, who issue no certificate until the work and results of the examination have undergone scrutiny at headquarters.

WOMEN HEALTH WORKERS—THE HEALTH VISITOR

The faith and belief in the Royal Sanitary Institute throughout the Empire is immense; and it does not, at home, share the fate of the prophets in being without honor. The respect in which it is held is very great, and the extent to which the Ministry of Health and the local health authorities are prepared to trust and rely upon it practically unbounded. The part played in relation to the examination of sanitary inspectors has been explained. In the case of the other non-medical worker in the health department of the local authorities—the health visitor—the part is even greater.

Woman, in Britain at any rate, did not join the team of the public health department till about the end of last century. At that time, in order that she might have an official position and possess various powers of entry to premises and of taking action, she joined as a sanitary inspector, having sat the various examinations and secured the necessary qualifications. Once in office the woman showed her real value and importance and in a very short time all subterfuges were dropped and she was given a definite place in the organization. The title "health visitor" was coined for her, and the Royal Sanitary Institute undertook to hold examinations for the health visitor's certificate and issued a syllabus upon which various institutions in London and the provinces based courses of training.

As far as possible the institute sought to limit entries to women who had qualified as nurses or midwives, or both; but because the calling of health visitor was so attractive to women desirous of doing work of a social kind, provision had to be made for the training and examination of these and certain institutions of standing arranged to meet the need.

Arrangements of this kind continued to operate until the end of 1918, when the need was recognized for a single portal of entry to the profession of health visitor and for one examination qualifying for the certificate without which no woman was eligible for appointment under a scheme of maternity and child welfare to which the Ministry of Health made financial contribution.

As in the case of the sanitary inspector, the Minister turned once more to the Royal Sanitary Institute, and in due course a special board was established to conduct the examinations and to issue a syllabus of subjects for the guidance of training institutions and candidates. The Minister of Health himself issued various rules and regulations and laid down certain conditions that must be complied with before candidates could sit at the examination. Broadly there are 2 classes, (1) nurses who have completed a 3-years course of training either at a recognized general hospital or a recognized children's hospital, who have obtained the certificate of the Central Midwives Board, and who have attended an approved whole-time course in public health work lasting for at least 6 months; and (2) women, not being trained nurses, who have undergone an approved course of training in public health work extending over 2 years, together with 6 months' training in hospital, and who have obtained the certificate of the Central Midwives Board, without which, of course, no one other than a medical practitioner may practise as a midwife. All entrants to the service today whether trained nurses or not must take a whole-time course of instruction.

TEACHING AND TRAINING

The institutions providing facilities for training number round about a dozen, about half being in London and the remainder in various provincial centers. In all cases practical training is compulsory, and arrangements are made for this to accompany the more theoretical lectures and instruction at selected maternity and child welfare centers.

In some districts, the county of Durham particularly, arrangements are made for providing the teaching and training, while the student is working and receiving a certain amount of pay as probationary health visitor in the health department. The service given in these cases is regarded as payment made for the teaching provided. In other cases

the students themselves pay the necessary fees which are comparatively small by reason of the fact that the Ministry of Health makes a grant to the teaching institutions toward the cost of the training of each of the students. The fee for the examination is paid by the candidate. The examination is of a very searching character and consists of 3 written papers, each candidate being examined orally also by a board consisting of at least 3 examiners, 2 of whom are medical officers of health, and 1 a health visitor.

From time to time the examination is supervised by an officer of the Ministry of Health. When the rules and regulations of the Minister with regard to the examination were first introduced, it was felt that on account of their stringency they might lead to a serious reduction in the number of women seeking to qualify as health visitors.

Events have shown this fear to be without foundation, the numbers attending the recognized courses and facing the examiners being much more than adequate to meet the needs of the local health authorities. At the moment at least this is the case, and if in future there should be any falling off it will be the result rather of the unsatisfactory conditions as regards pay than of stringency in regard to training and examination.

THE POST OF HEALTH VISITOR

Having regard to the fact that the official title of this officer is very peculiarly British, perhaps it should be explained that mainly the health visitor is engaged in performing duties that do not involve actual nursing. She is defined indeed in the Local Government Order, 1930 (*Qualifications of Medical Officers and Health Visitors*), as a woman whose duties include the visiting of women and children in their homes for the purpose of giving advice as to the nurture, care and management of young children, and as to the health of expectant and nursing mothers. By health authorities, some nurses are, of course, employed, who work among school children, for example, and others who carry out more or less of what is called district nursing among persons not removed to hospital. Staffs of nurses for attending to patients suffering from infectious disease are attached to isolation hospitals. In most districts infectious cases are only exceptionally nursed at home.

The practice of calling upon one woman to double the parts of nurse and health visitor is followed in a small number of places, and in these there has been some sort of inclination to adopt the official title of public health nurse. Neither the practice nor the title, however, has been generally accepted, nor indeed are they regarded with favor. Despite the efforts of an odd body or medical officer of health

here and there, it appears certain that the older and less cumbrous and more accurate name "health visitor" will be retained. It is a fact, of course, that in the homes and by the people the woman is most commonly addressed as "nurse," but, by the same token, the sanitary inspector is rarely if ever called by that name, so that it would appear to matter little to anybody but the stickler exactly what they are called. I am a stickler and I like "health visitor."

So apparently does the Minister of Health, for in an order issued at the beginning of last year under powers granted to him in the Local Government Act, 1929, he uses it again in indicating to local health authorities that any person appointed to such a post must be a woman who, prior to April 1, 1930, has held the appointment of health visitor with the approval of the Minister, or who has obtained the health visitor's certificate issued by the Royal Sanitary Institute.

THE TUBERCULOSIS VISITOR

In the same order reference is made to another woman visitor as well as to certain medical officers who must or may be appointed by local health authorities. The particular visitor mentioned is the "tuberculosis visitor" whose duties in the main lie in relation to the tuberculosis dispensary and the homes of persons attending the institution or who are notified as suffering from tuberculosis. The purpose of her visits according to the definition is the giving of advice as to the care and hygiene of persons suffering from tuberculosis, and as to the measures necessary to prevent spread of infection.

The kind of woman suitable for the position is one who has obtained the health visitor's certificate or who is a fully trained nurse and has had at least 3 months' special experience at a sanatorium or hospital for the treatment of tuberculosis, or at a tuberculosis dispensary. In the Ministry order it is stated in fact that only exceptionally will an appointment by an authority of any person not so qualified be approved. The importance of the approval of the Minister to an appointment lies in this—without it no financial assistance will be given to the authority by the Minister toward the payment of the salary of the officer. In addition, of course, by laying down requirements as to qualification in orders and regulations the Minister insures that trained officers only shall be employed, creates a demand for training, and encourages teaching institutions to provide the courses of training.

VARIOUS MEDICAL OFFICERS

In addition to health visitors and tuberculosis visitors, as already noted, the regulations of the Minister issued in 1930 contain reference

to various medical officers who of recent years have joined the public health department organization of the local authorities to attend to particular sections of the population and to deal with particular diseases. In each case special qualifications and expert knowledge and skill are required, and it is in order to insure that local authorities shall appoint none but individuals specially qualified that the Minister has laid down his rules. The officers referred to in the order include a tuberculosis officer or medical superintendent, a venereal diseases pathologist, a venereal diseases officer, a senior maternity and child welfare officer, and a medical officer of an antenatal clinic.

Tuberculosis Officer—The requirements in regard to the tuberculosis officer or medical superintendent—meaning by the latter a medical officer in clinical charge of a residential institution for the treatment of patients suffering from tuberculosis in the early or curative stages of the disease, which contains not less than 75 beds, are (1) that they shall have had at least 3 years' experience in the practice of their profession, (2) have spent in general clinical work a period of not less than 18 months, of which not less than 6 must have been spent in a hospital as resident officer in charge of beds occupied by general medical or surgical cases, and (3) have received special training for a period of not less than 6 months in the diagnosis and treatment of tuberculosis.

Venereal Diseases Officer—The person appointed venereal diseases pathologist must also have had 3 years in practice, but in addition must possess a certificate given by a pathologist in charge of a laboratory approved by the Minister of Health, testifying that, under his supervision, the person, within the preceding 2 years, (a) has personally carried out not less than 500 serum tests for syphilis by a method approved by the Minister and is competent to perform such tests, and (b) has personally examined microscopically not less than 300 specimens from lesions suspected to be syphilitic, gonorrheal, or chancroidal, and is competent to conduct such examinations.

The qualifications for a venereal diseases officer, in addition to the 3 years' professional practice, are that he must be in possession of a certificate given by a venereal diseases officer of a treatment center at which not less than 500 patients attended for the first time during the 12 months preceding the issue of the certificate, testifying that he has attended at the treatment center for a period of not less than 3 months, and has received during that period not less than 130 hours' instruction in the modern methods of diagnosis and treatment of venereal disease.

Maternity and Child Welfare Officers—A person appointed senior maternity and child welfare officer must be in a position to show

either that he has held such a post with the approval of the Minister prior to April 1, 1930, or that in addition to 3 years' professional practice he has had special experience in midwifery and child welfare work and has been employed by a local authority under the Maternity and Child Welfare Act.

The conditions in the case of the medical officer of an antenatal clinic are that the person shall either have held an appointment approved by the Minister prior to April 1, 1930, or subsequent to qualification have had 3 years' professional practice and special experience of midwifery and antenatal work.

In the main, in these cases it is practical experience that is required; and in most instances that experience can only be obtained in the service of a local authority or in a special institution. The difficulty of securing it in certain cases is considerable, but actually there is no shortage in the supply of officers required.

Veterinary and Food Officers—The lists and descriptions given do not quite exhaust the number of officers included in the team of health workers engaged in or actually attached to the public health department of the local authority possessed of a reasonably complete organization. In Britain, even in quite large districts, the "bureau" system as it is seen in other countries and which, *prima facie* at any rate, suggests the existence of water-tight compartments, is not recognized. The medical officer of health being an executive and working officer is given general supervision of and responsibility for the whole department, the persons in charge of the various branches of work being responsible to him.

Among such individuals, in addition to those mentioned, there will be an officer in charge of food and veterinary work, who will necessarily and naturally be a qualified veterinarian. No special qualifications, apart from those of a veterinary surgeon, are laid down for this officer though very many have undergone special training at universities and veterinary colleges, and have secured special diplomas in veterinary hygiene. Control of the food supply, meat in particular, is part of the duties of such officers, though it must be noted that the sanitary inspector, having by law powers of inspection, seizure, etc., of food, has a certain position in this connection though occasionally he works under the veterinary officer as an inspector of food. Special courses of training in meat and food inspection are provided by a number of bodies throughout the country, and in London notably by the Royal Sanitary Institute. This body, after examination, grants a certificate of competence to act as inspector of meat and foods, which is very highly valued and approved by the Ministry of Health. Only persons who have un-

dergone the specific training and who comply with certain conditions, among them that they possess the certificate of qualification to act as a sanitary inspector, are admitted to the examinations. These, like those for sanitary inspectors and health visitors, are held at various centers throughout the country in addition to such as are held in London at regular intervals.

THE SCHOOL MEDICAL SERVICE

The School Medical Officer—The medical officer of health to a local authority is commonly the medical officer to the education authority of the district also, and is responsible for the medical inspection, supervision, etc., of the school children in the area. The staff required for these purposes depends upon the size of the school population but in addition to medical members includes also nurses. No special qualifications are prescribed for these officers, but so far as the medical members are concerned those who are appointed assistants generally possess a degree or diploma in public health, and use the appointment—as do very many of the other specialist officers, e.g., the tuberculosis and maternity and child welfare officers—as a stepping stone to that of medical officer of health.

The School Nurse—School nurses apart from their ordinary nursing qualifications are not called upon to produce any other. Several, however, are qualified to act as health visitors and a number of others also possess a special certificate in school hygiene which was established by the Royal Sanitary Institute some years ago, and for which special courses of training are obtainable in a number of institutions throughout the country.

THE RÔLE OF FIELD TRAINING

From what has been said it may be gathered that so far as Great Britain itself is concerned there is a very fair recognition of the needs in regard to the qualification of the various individual members of the health personnel. In addition it may be claimed that in general in the universities and elsewhere—schools of technology, for example—there is available an adequate amount of teaching and training for all grades. In all the courses of training it is noticeable that field work and practical experience occupy a considerable space. The chief reason for this is that there is insistence upon it in the syllabus of the examining bodies.

In the case of the person sitting for the degree or diploma in public health and the candidate for the certificate of the sanitary inspector, both must see actual work for a fairly long period in a public health de-

partment. The health visitor pupil also must work in a maternity and child welfare center during the whole of the time she is studying for her examination, i.e., a minimum period of 6 months. While there may be some who doubt the necessity and advantage of working in one department as an alternative to seeing methods adopted in a number of areas and institutions, it is noticeable that the Minister of Health in stating his requirements in the case of such officers as those to be engaged in venereal diseases and maternity and child welfare work, makes it a condition that they shall have had actual experience in a center.

Long as it is, this report does not pretend to be much more than a sketch of conditions as they exist in Great Britain in regard to the qualifications and training of health personnel. Those who desire further information may find the following orders, regulations, etc., useful: Details with regard to the training and examinations for degrees and diplomas in public health may be obtained from the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W. C. 1, England; and for the certificates of sanitary inspectors, meat and food inspectors, and health visitors, from the Secretary of the Royal Sanitary Institute, 90, Buckingham Palace Road, S. W. 1, London, England.

General Medical Council Resolutions and Rules for Diplomas and Degrees in Public Health, to come into force on October 1, 1931, is published by and may be obtained from Messrs. Spottiswoode, Ballantyne & Co., Ltd., London, England.

The following are obtainable from H. M. Stationery Office, Kingsway, London, W. C. 2, England:

Public Health (Officers) Act, 1921.
The Sanitary Officers Order, 1926.
*Ministry of Health Memorandum 101/*M. C. W. (Dealing with the training of health visitors).
Ministry of Health Circular 557 (Dealing with the training of health visitors).
Ministry of Health Circular 680 (Health Visitor's Certificate).
Ministry of Health Circular 879 (Appointment of Health Visitor).
The Local Government (Qualifications of Medical Officers and Health Visitors) Regulations, 1930.

Maternity and Infant Welfare Service in England and Wales*

JAMES FENTON, M. D., D. P. H., HON. F. A. P. H. A.
Medical Officer of Health of the Royal Borough of Kensington, London, England

THE development of maternity and child welfare work has depended on two main factors—the desire to ameliorate individual suffering, and efforts to increase national efficiency. Both factors were stimulated by the Great War, which led to the discovery of large numbers of men whose low physical standard was found to be due in great measure to insufficient skilled attention in infancy and childhood; also the loss of large numbers of men created a national desire for an improvement in the rearing of children.

Four stages of development may be distinguished in England and Wales. From 1900 to 1914 there was a period of private effort and permissive legislation. From 1914 to 1918 was the period of encouragement of local effort by the government. From 1918 to 1930 there was a great development of State aid and control. Twelve months ago we entered upon a fourth stage following the introduction of the Local Government Act of 1929.

FIRST STAGE—1900 TO 1914

Before the earlier of these years, philanthropic agencies had been at work, and they received an impetus about 1900 from the awakening of public interest in the falling birth rate and the physical condition of the population as revealed by the experiences of the South African War. In 1904 a center where poor expectant mothers could receive free meals was established by voluntary enterprise in my own district of Kensington.

A series of conferences on infant mortality, organized by a voluntary committee in 1906, was opened; then several voluntary associations for promoting the health of mothers and infants were founded. The first infant consultation center was commenced in 1907 in the Borough of St. Marylebone; and the first school for mothers, from which infant welfare centers have sprung, was founded in 1907 in another London Borough, St. Pancras.

* Read before a Special Session of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

The medical inspection of school children was made obligatory in 1907; and in the same year an Act was passed empowering local authorities to require all births to be notified to the Medical Officers of Health within 36 hours.

Beginning in 1908, the government made annual grants to local education authorities in respect of schools for mothers. Thus it will be seen that in the earliest days the government regarded this work primarily from an educational standpoint.

SECOND STAGE—1914 TO 1918

The government issued a circular in 1914 laying down conditions under which they would pay grants in aid of maternity and child welfare work carried out by local health authorities and voluntary associations. The first of these was paid in the same year, and from that time onward the government has accepted responsibility for 50 per cent of the cost of all approved schemes, the remainder being provided by local authorities and voluntary associations.

The Notification of Births Act of 1907, which was permissive, was made compulsory throughout the country in 1915.

THIRD STAGE—1918 TO 1930

In 1918 the Maternity and Child Welfare Act was passed. It gave wide and comprehensive powers to local authorities, acting with the approval of the government, to establish services designed to safeguard maternity and to preserve the health of children under 5 years of age, after which they enter school and come within the jurisdiction of the school medical service.

The grant paid by the Government rose from £56,809 in 1915 to £770,000 in 1920 and £1,193,707 in 1930. Of this last sum, the amount paid to local authorities was £929,824, and to voluntary bodies, £263,883. The total expenditure of the Government and local authorities in 1930 was £3,050,638; in addition, considerable sums obtained from charitable sources were spent by voluntary associations.

In 1919 there were in England and Wales 1,550 infant welfare centers, of which 660 were conducted by voluntary agencies. In 1930 the number had grown to 2,893, of which 913 were conducted by voluntary bodies. The provision of antenatal clinics was not started until after the war, but by 1930 these had been established at 971 of the infant welfare centers; there were also 75 special antenatal clinics, while others had been established at hospitals.

In 1930 dental treatment was provided at, or in connection with, 1,061 of the infant welfare centers. The equivalent of approximately 2,083 women were devoting the whole of their time to health visiting. Over 16,000 registered midwives had given notice of their intention to practise in England and Wales. Of the 660,267 births in 1928, over 65 per cent were attended by these qualified women. Local authorities have provided, or are paying for, 2,561 maternity beds in 158 institutions for difficult confinements or for women who cannot with safety be confined in their own homes. They have also provided or are paying for 1,068 beds in children's homes, 518 beds in baby hospitals, 131 cots in observation wards, and 900 beds for children in convalescent homes. Under schemes approved by the government, there are 97 day nurseries which undertake the care and supervision of children under 5 years of age; there are 94 homes for unmarried mothers and their babies and these have accommodation for 1,410 women, who are received before confinement and subsequently retained, with their children, for a period averaging 6 months.

Two hundred and forty-three local authorities have made arrangements for home nursing of cases of measles, whooping cough, gastro-enteritis, poliomyelitis, ophthalmia and maternal complications, and 217 have provided treatment for crippling defects in children. Artificial light treatment has been established at 158 centers. In 1929 the expenditure on additional nourishment for expectant and nursing mothers and their children was £247,052.

Since 1927, private maternity homes run for profit cannot remain open unless registered by the local authorities, who have power to inspect these institutions, of which there are over 3,000.

FOURTH STAGE—1930 ONWARD

This Act, which is one of the greatest measures of reform in recent years, abolished poor law authorities, with the result that municipal and poor law services for maternity and child welfare will eventually be amalgamated and placed under the control of one local authority. The government grants of 50 per cent of approved expenditure were abolished and replaced by fixed block grants. Moreover, an important change was made in the system of determining the amount of grant to be paid to each authority. While a grant of 50 per cent of approved expenditure had been found to stimulate wealthy authorities to action, it did not in all cases prove sufficient to encourage the poorer authorities to establish adequate services. To meet this difficulty, a differentiation has been made and the new block grants are calculated upon a formula giving greater help to the poorer authorities.

All maternity and child welfare grants are now paid direct to local authorities, who in turn are required to give appropriate sums to the approved voluntary bodies operating in their respective areas; and the supervision of the work of these voluntary agencies has been transferred from the government to the local authorities.

The Act secures that the supervision of children's health from birth to school-leaving age is entrusted to one and the same authority and makes it possible for that authority to supervise midwives working in their area. Finally, it requires that medical officers and health visitors must have specialized experience before they can engage in maternity and child welfare work.

ADMINISTRATION

The administration of maternity and child welfare schemes is carried out by a special statutory committee of the local health authority. The authority may co-opt for service on the committee persons specially qualified by training or experience in subjects relating to health and welfare; but not less than two-thirds of the committee must have been directly elected as councillors on the authority, and at least 2 members of the committee must be women.

There are still many infant welfare centers, day nurseries, baby hospitals, etc., which are conducted by voluntary associations; these bodies appoint their own committees of management and are free to carry out their own administration, provided that, if they receive government grant, they conform to the rules laid down by the local authority and submit to inspection by officers of the authority.

There is much diversity of opinion as to the management and staffing of the various institutions, but it is almost the invariable rule that the entire work in an area is under the supervision of the Medical Officer of Health, who is in administrative control of the whole-time or part-time maternity and child welfare officers carrying out the work.

The majority of the assistant medical officers are women. In those districts where general medical practitioners are appointed to give part-time service, opinion is divided as to whether it is preferable to select doctors who are in practice in the area in which the institution is situated or those whose private work is some distance away; but there is a growing tendency to appoint whole-time assistant medical officers in those areas where the amount of work is sufficient to give full-time occupation to one or more officers. In smaller areas it is usual for one assistant medical officer to undertake the work at the infant welfare institutions and also to act as school medical officer, and perhaps even as tuberculosis officer. Where practicable, it is now

the common practice of local authorities to appoint whole-time health visitors (who are generally hospital-trained nurses with special public health experience) to carry out home visiting and to act as superintendents of the various institutions.

While there has been a gradual growth in the number of voluntary associations, the increasing difficulty experienced in recent years by these agencies in securing funds from private sources has made it necessary for some to be absorbed into the municipal organization; and in other cases the local authorities have had to supplement very considerably the government grant. It seems inevitable that voluntary maternity and child welfare bodies will become more and more dependent upon local authorities for financial support. The decline in voluntary financial support follows the growth of public opinion that the work initiated by private enterprise and voluntary endeavor has been proved to be of such great value that it should be maintained entirely by the State taxes and the local rates.

Although it is inevitable that local authorities must gradually assume more control and accept greater responsibility in regard to voluntary associations, it is desirable that every effort should be made to retain the interest and valuable help of the large number of ladies who devote their time and money to the development of the work: they radiate an excellent influence which the service cannot afford to lose.

It is equally important to secure the sympathy of the medical profession and the midwives. This support was not forthcoming from all quarters in the earlier years, mainly because some enthusiastic promoters of voluntary infant welfare centers tried to convert them into miniature hospitals and endeavored to divert sick mothers and children from general medical practitioners and hospitals by means of solicitation through home visitors and by generous gifts of milk.

The legitimate sphere of infant welfare centers is educative, preventive, and advisory. This idea has now been generally accepted and acted upon by those in charge, and the good will of the medical profession and midwives is being secured.

THE CAUSES AND INCIDENCE OF INFANT MORTALITY

The principal causes of death in the first month of life are difficult labor, complications of confinement, birth injuries, maternal toxemia, syphilis, and premature birth. The two most important causes of death after the first month of life are respiratory diseases and gastroenteritis.

Of the deaths of children under 1 year, 40 to 45 per cent are due to difficult labor, injury at birth, prematurity, and developmental dis-

eases, while approximately 25 per cent are due to respiratory diseases (including whooping cough and measles), 10 to 15 per cent to gastro-enteritis, and approximately 20 per cent to other causes.

A certain number of infant deaths are due to prenatal biological causes over which the maternity and child welfare service can exert no influence. For reasons not yet known, some pregnancies end in the birth of monstrosities, others terminate prematurely; in some pregnancies pathological changes occur which are sufficient to render the child incapable of survival. It has been found that there is a non-preventable infant mortality of 25 to 30 per 1,000 births, and these deaths occur almost entirely in the first month after birth.

But there is a wide sphere for maternity and child welfare work in eliminating adverse environmental factors which cause infant deaths. These arise before birth, at, and after birth, and include ignorance of the mother, malnutrition of the mother, defective sanitation, lack of skilled attendance, poverty, bad housing conditions, overcrowding, industrial employment of the mother, lack of breast-feeding, and atmospheric impurity due to smoke.

In England and Wales the infant mortality is higher in urban than in rural areas; it is much higher among illegitimate children; it varies, broadly speaking, with the density of the population; and it is higher among the industrial than among the other classes. Table I shows that the incidence falls chiefly on the first 3 months of life, especially the first 4 weeks.

The infant mortality rate remained practically stationary for many years before the present century, but during the last 30 years the decline has been considerable and continuous, as is shown in Table II.

TABLE I

DEATHS OF CHILDREN UNDER 1 YEAR PER 1,000 BIRTHS IN ENGLAND AND WALES

Year	*Under 4 weeks*	*4 weeks to 3 months*	*Total under 3 months*	*3 to 6 months*	*6 to 12 months*	*Total under 1 year*
1896–1900	—	—	74	34	48	156
1901–1905	—	—	70	28	40	138
1906–1910	40	23	63	22	32	117
1911–1915	39	20	59	20	31	110
1916–1920	37	17	54	14	22	90
1921	35	15	50	14	19	83
1922	34	13	47	11	19	77
1923	32	11	43	10	16	69
1924	33	12	45	11	19	75
1925	32	13	45	11	19	75
1926	32	12	44	10	16	70
1927	32	11	43	10	17	70
1928	31	11	42	9	14	65

TABLE II

MORTALITY RATE UNDER 1 YEAR PER 1,000 BIRTHS IN ENGLAND AND WALES

1896–1900	156
1901–1905	138
1906–1910	117
1911–1915	109
1916–1920	90
1921–1925	76
1926	70
1927	69
1928	65
1929	74
1930	60

In an impartial review of the situation, due regard must be paid to the contributory factors which have been at work side by side with the maternity and child welfare service. During and after the Great War the economic conditions of the working classes have been greatly improved, and in the post-war period there has been an increased and successful attack upon the "racial poisons"—alcohol, syphilis, and tubercle. The improvement in the midwifery service following the introduction of the Midwives Act of 1902 has been considerable. It is during the growth of the maternity and child welfare service that the community generally has enjoyed the benefits of the school medical service, established in 1907, and of National Health Insurance, inaugurated in 1912—the latter including maternity benefits for the insured.

The great sanitary improvement which has taken place in England and Wales had begun many years before maternity and child welfare services started; but in this connection it is fair to point out that although this factor had affected the general death rate in the latter half of the last century, it has only been during the period in which the maternity and child welfare work has been growing that the infant death rate has been falling.

Statistical data are open to widely different inferences and interpretations, but a careful survey has led to the general opinion that a considerable portion of the diminution in infant mortality can be ascribed to maternity and child welfare work of local authorities and the voluntary associations working in coöperation with them. Medical opinion supports this view entirely, but it is clearly impossible to determine the extent to which the credit for the diminution should be attributed to the various factors which have been operating.

A further reduction in the infant mortality rate can be made by securing additional improvements in the general sanitary environment, particularly in housing; by extending and improving the present ma-

ternity and child welfare schemes with a view to securing better education of mothers in the care and management of their children; by the provision of a domiciliary nursing service; by establishing improved coördination of the work of local authorities with that of private medical practitioners, midwives and general hospitals so as to secure effective prenatal supervision, adequate attendance at childbirth and such assistance as may be required to protect and safeguard the health of mothers and children after birth. Finally, and most important of all, much further improvement can be secured by the education of the community in all matters of public and personal hygiene. In this connection it should be pointed out that medical officers of health are anxious that maternity and child welfare work should not be divorced from other practical preventive work carried out under their supervision. They regard general preventive medicine as a developing service, of which maternity and child welfare work is a developing part.

MATERNAL MORTALITY

There are about 600,000 mothers in England and Wales giving birth to children each year. Of these, about 3,000 have died in each of the last 10 years in the fulfilment of this function. This is a serious and largely avoidable loss of life at the time of its highest capacity and in its most fruitful effort. Moreover, the deaths do not indicate the whole loss, for a much greater number than 3,000 are each year permanently injured or invalided in the physiological process of childbirth.

During the present century the general death rate for all persons at all ages has been reduced by approximately one-third, the infant mortality rate has been halved, and the death rate of women at reproductive ages from all causes has declined; but, as is shown in Table III, the maternal mortality rate has shown but little decrease in the last 20 years:

Puerperal sepsis accounts for the highest number of deaths; toxemia of pregnancy comes next; then hemorrhage; lastly, the various forms of disease concurrent with pregnancy or confinement may, either of themselves or by rendering confinement difficult, have fatal issues, among them being heart disease, pneumonia, rickets, syphilis and embolism.

The enormous interest aroused in this problem in recent years resulted in the government setting up a Maternal Mortality Committee, who have recently issued an important document incorporating the experience of a number of obstetricians and the results of a detailed study of 2,000 deaths of mothers in childbirth. The committee found that

TABLE III

Year	Births Registered	Deaths of Women Classed to Pregnancy and Childbearing			
		No. of Deaths	Rates per 1,000 Births Registered		
			Puerperal Sepsis	Other Causes	Total Mortality
1911	881,138	3,413	1.43	2.44	3.87
1912	872,737	3,473	1.39	2.59	3.98
1913	881,890	3,492	1.26	2.70	3.96
1914	879,096	3,667	1.55	2.62	4.17
1915	814,614	3,408	1.47	2.71	4.18
1916	785,520	3,239	1.38	2.74	4.12
1917	668,346	2,598	1.31	2.58	3.89
1918	662,661	2,509	1.28	2.51	3.79
1919	692,438	3,028	1.67	2.70	4.37
1920	957,782	4,144	1.81	2.52	4.33
1921	848,814	3,322	1.38	2.53	3.91
1922	780,124	2,971	1.38	2.43	3.81
1923	758,131	2,892	1.30	2.51	3.81
1924	729,933	2,847	1.39	2.51	3.90
1925	710,582	2,900	1.56	2.52	4.08
1926	694,563	2,860	1.60	2.52	4.12
1927	654,172	2,690	1.57	2.54	4.11
1928	660,267	2,920	1.79	2.63	4.42
1929	643,673	2,787	1.80	2.53	4.33

in 48 per cent of these there was an avoidable cause—an absence of antenatal care in 17 per cent, errors of judgment in practice or treatment by doctor or midwife in 17 per cent, negligence of the patient or her friends to adopt or carry out medical advice in 9 per cent, and lack of reasonable facilities for effective medical care in 5 per cent. In the remaining 52 per cent of deaths no preventable factor actually emerged, but the committee expressed the opinion that a fuller knowledge of the facts would probably have revealed such a factor in many, and that not less than half of these 2,000 deaths were avoidable.

HOW THE MATERNAL DEATH RATE MAY BE REDUCED

A study of the report of the Maternal Mortality Committee shows that, in order to secure a reduction of this high rate in England and Wales, there is a need for improvement in the education of the medical student in the principles and practice of obstetrics and gynecology. There is also room for improvement in the quality of medical practice. It is appreciated that doctors often work under a serious handicap in obstetric cases, but the investigation has shown the need for a higher standard of knowledge and skill on the part of medical practitioners, as well as for the provision of consultant services and of an increased

number of beds in maternity hospitals. Local authorities should improve and extend the facilities available at antenatal clinics. Every pregnant woman should have the advantage of effective antenatal supervision and a more intense effort must be made to educate and encourage mothers to use the facilities provided.

The committee recognized the immense progress made in recent years; but stated that there is still scope for further coördination of the maternity and child welfare services in every area, and formulated proposals for a national maternity service which may be summed up as follows:

1. The provision in every case of the services of a qualified midwife to act either as midwife or as maternity nurse.
2. The provision of a doctor to carry out antenatal and postnatal examination in every case, and to attend during pregnancy, labor and the puerperium, as may prove necessary, all cases showing any abnormality.
3. The provision of a consultant, when desired by the doctor in attendance, during pregnancy, labor and the puerperium.
4. The provision of hospital beds for such cases as need institutional care.
5. The provision of certain ancillary services, e.g., transport, sterilized equipment, laboratory facilities.

While the committee's report contains little which is original, it has brought together for the first time the various aspects of the problem. It has shown the channels along which future efforts should be directed. Briefly they are—improved antenatal supervision, improved obstetric practice, and more complete local organization to provide and make available all the necessary facilities for an effective service.

Evaluating the True Significance of Venereal Disease Morbidity

WALDEMAR E. COUTTS, M. D.

Chief of the Section for Social Hygiene, Santiago, Chile

THERE is no doubt whatever that efforts made by different countries of the world in combating venereal diseases have given good results, and we must believe what statistics show us in order to be satisfied. Notwithstanding this statement, a careful analysis of the morbidity coefficient obtained by reference to total population makes us believe that the decrease is more apparent than real.

The venereal disease morbidity coefficient for a determined period of time is calculated on the basis of the total census population or on that evaluated yearly by means of special equations. Let us suppose, for example, that during the year 1920 in "X," with a population of 5 million, 35,000 first infections of venereal diseases were registered—this would give us a 7 per cent morbidity for that year. The census of 1930 shows that the population of this same land has increased to 6 million, but the number of venereal disease contagions registered was more or less the same; nevertheless the morbidity would be 5.8 per cent.

We estimate that the error induced is larger if we take into consideration that the population which has raised the number from 5 to 6 millions is under puberty, and owing to this physiological reason, not exposed to a venereal contagion.

If we next think on the decrease of infant mortality, we will arrive at the conclusion that the estimation of venereal disease morbidity through simple calculation referred to total population does not give us a true knowledge of the real state of affairs.

On the other hand, we believe that there exists another factor which has contributed in a considerable degree to lower the number of venereal disease first contagions—the perfected methods of statistics which every day lessen the possibilities of reinscription and thus computation of a case two or more times.

With the system of identification card we keep in our dispensaries (24 in Chile), we are able frequently to prove that one man has abandoned one of them and sought treatment in another. With this

method such a patient will never be inscribed in our index as a new case of syphilis. Without this card one syphilitic appeared before as a primary case several times, and increased the statistics.

According to our opinion, the most accurate data for evaluating the efficiency of methods adopted toward preventing venereal disease contagion will be obtained when we modify our statistical methods in the way that we will try to prove.

In the vital statistics (demography) we find the most interesting data to establish our method. Starting from the total number of births in a given year, we can follow this mass of new-born through years until we arrive at the age at which we wish to start our study. For example, we start in the year X, in which 10,000 children were born. Of this total 8,000 reached their 15th year in the year Z. In the year X–1 12,000 children were born, of which only 9,000 reached in the year Z–1 their 15th birthday. If we then search the number of venereal disease contagions registered among boys of 15 years during Z and Z–1 years, we will be able to make a sound comparison (see illustrative table).

These groups can easily be followed yearly through statistics and we can keep a record of each successive annual group as regards ve-

Table for age 15 years

Year	Born	Death rate per year															Alive	Venereal Contagions	% in relation to living
		0–1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	12–13	13–14	14–15			
1910	10000	600																	
1911	9000	720	350																
1912	12000	636	405	210															
1913			415	202	100														
1914				196	112	72													
1915					121	66	62												
1916						68	52	42											
1917							47	39	31										
1918								36	32	18									
1919									24	17	12								
1920										10	16	8							
1921											12	10	5						
1922												6	4	4					
1923													2	3	2				
1924														1	3	2	8484	325	38.3
1925															2	2	7317	285	38.9
1926																1	10423	425	40.

nereal disease contagion. If we allow 5 per cent error, which I esteem excessive, for emigration or immigration, I think we will always benefit largely by thinking of the advantages of basing our statistics on this method.

On the other hand, we can also group the total number of venereal infections in sections of 15–19 years, 20–24 years, etc., and make a series of combinations that will allow us to draw numerous interesting conclusions. Sex identification in all these series will afford us an inestimable means of relating these data to social development of communities, and of pointing out the most important sources of sensualism and exposure to contagion.

Clinics of Mental Hygiene, Milan

A RECENT decree issued by the government of the province of Milan provides for the establishment of 4 mental hygiene clinics in the city of Milan and 4 in other cities of that province. Additional clinics are to be opened as needed.

Their purposes will be: early diagnosis of mental disease; prevention of such disease through welfare work with persons showing abnormal tendencies; dispensary treatment combined with home visiting by a nurse; and financial aid and aid in kind when necessary. The clinics will be attached to the psychiatric hospital of Milan and maintained from public funds. Each clinic will employ a visiting nurse. The physicians at the clinic are required to instruct the patients in mental hygiene. The clinics are required to coöperate with the child welfare organizations and the various agencies interested in the protection of the people's health.—*La Medicina del Lavoro,* Milan, 1931, No. 8, p. 336.

Food Poisoning Following the Eating of Codfish Cakes

ELLIS KELLERT, M. D.

Ellis Hospital Laboratory, Schenectady, N. Y.

A GREAT variety of food products has been found to be associated with so-called food poisoning. In previous years, canned meats and vegetables, olives, cheese, and ice cream were the most common vehicles of transmission, and organisms of the salmonella, paratyphoid, enteritidis, and botulinus groups were most frequently isolated. More recently cake,[1] eggs,[2] cream fillings, and custard fillings have been identified with outbreaks of food poisoning.

Several years ago we learned of a case of gastroenteritis in which symptoms developed shortly after the eating of cake containing a cream filling. A piece of the cake regarded as the cause of the illness was examined bacteriologically and large numbers of *Staphylococcus aureus* were obtained. An investigation developed the fact that the baker who had prepared the cake suffered from boils of the forearms. That sickness may be induced by the eating of food contaminated by staphylococci is indicated by the studies of E. O. Jordan,[3] who found that broth cultures of *Staphylococcus aureus* when taken by mouth produced gastrointestinal disturbance.

To the list of food products now occasionally identified with symptoms of poisoning we wish to add another—fish-cakes—the eating of which by several individuals resulted in illness with marked gastrointestinal symptoms.

On a warm Friday in June there was placed on an open counter in a public market a tray holding several dozen codfish cakes. Purchases were made by several women in the morning and eaten at noon. In each family which ate of them gastrointestinal symptoms developed and in 2 the symptoms were identical and severe. The history of one is as follows:

Codfish cakes bought at 11:30 A.M. were eaten at noon by the mother and 3 sons. At 8 P.M. the mother developed fever, abdominal cramps, vomiting, diarrhea, and was prostrated. The 3 boys also became sick that night with identical symptoms. The father of the

family did not eat the fish-cakes and remained well. The mother and sons were ill for about a week, but recovered.

A piece of codfish cake was obtained on the following day by the attending physician, and brought to the laboratory in waxed paper which was part of the original wrapper. We found in smears of the fish-cake numerous Gram-positive cocci and Gram-negative bacilli. Cultures on blood-agar plates yielded many colonies of streptococci of the viridans type, and a Gram-negative bacillus, which exhibited the following characteristics:

A slender non-motile bacillus producing on Endo's medium colorless colonies about 1 mm. in diameter with granular surfaces. Veining and slightly scalloped margins were present. On triple sugar medium, the butt showed acid production; the slant remained colorless, and there was no gas production. Litmus milk became faintly acid; gas was not formed in lactose broth, nor in the various carbohydrate media. In dextrose, maltose, mannite, levulose and galactose, acid was formed but none in saccharose or dextrin, and only in lactose on prolonged incubation. Indol failed to develop in peptone broth.

The organism was not agglutinated by typhoid serum or by dysentery serum, Shiga. Indefinite agglutination was obtained with polyvalent serum. A guinea pig injected intraperitoneally and a rabbit intravenously with a 48-hour broth culture both developed frequent bowel movements and loss of appetite but soon returned to normal.

The organism seemed to be an atypical strain of *B. dysenteriae* and a culture was submitted to Marion B. Coleman of the Division of Laboratories, Department of Health, State of New York, who reported the organism to be *B. dysenteriae Sonne*.

The circumstances in this small outbreak of food poisoning make it appear very probable that the codfish cakes were responsible for the symptoms. The *B. dysenteriae* is not commonly associated with food poisoning although Gilbert and Coleman[4] found it rather frequently in specimens of feces obtained in New York State, and suggest that this strain of *B. dysenteriae* may be more prevalent than has been supposed. Since the organism develops a soluble exotoxin which is readily absorbed by the intestine it is not unlikely that many common foods may become contaminated by this strain of *B. dysenteriae* and when eaten give rise to symptoms of food poisoning.

REFERENCES

1. Laidlaw, F. W. *Health News*, New York State Dept. of Health, VII, 49: 193, 1930.
2. Scott, W. M. Food Poisoning Due to Eggs, *Brit. M. J.*, 3627: 56, 1930.
3. Jordan, E. O. The Production by Staphylococci of a Substance Causing Food Poisoning, *J. A. M. A.*, 94, 21: 1648, 1930.
4. Gilbert, R., and Coleman, M. B. Cases of Dysentery in New York State Attributed to *B. dysenteriae Sonne*, *A. J. P. H.*, XIX, 3: 312 (Mar.), 1929.

Work Environment as a Factor in the General Health of Workers*

BERNARD J. NEWMAN, F. A. P. H. A.

Director, Philadelphia Housing Association; Formerly, Consulting Hygienist, Office of Industrial Hygiene and Sanitation, U. S. Public Health Service

IN discussing the influence of work environment on the health of industrial workers, we are concerned primarily with the predisposing causes of disease; not with the exciting causes. Adverse work environment, including bad housing, is not, of course, a disease in itself. One cannot subject it to microscopic examination and isolate a pathogenic bacillus to which a name may be given. It cannot be subjected to laboratory analysis to determine its chemical constituency, nor can one so label it in the nomenclature of causes of death that the physician may incorporate it on his death certificate. Nevertheless, this does not minimize the importance of the problem since the predisposing causes of which it is one are often as great a menace as the organisms of disease, or the industrial poisons that destroy cell life and inhibit the normal functioning of the body organs.

To the industrial hygienist this may seem trite. Gifted with an inquisitive mind, he seeks and finds causes for industrial diseases not only in the chemical and physical properties of the elements and compounds handled in industrial processes but also in the faulty hygiene of the worker and of the workplace. That he can reduce the frequency and severity of industrial diseases through improved plant practices demonstrates that often the serious aspects of such operations are not the materials themselves so much as the way they are handled. Some processes are always potential hazards, but by means of plant or personal hygiene the danger from them may be reduced or eliminated.

If the hygienist limited his research to the demonstration of a specific compound as the exciting cause of an industrial disease, very little progress in the maintenance of industrial health would be made. Because health research in industry recognizes the part played by working conditions and the work habits of the industrial worker, and institutes plant improvement programs directed against them, progress in industrial health has been rapid.

---

* Read before the Industrial Hygiene Section of the American Public Health Association at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

Out of such recognition of working conditions as causal factors in industrial sickness have come definite programs to eliminate defects in plant sanitation, faulty illumination, excessive temperatures, insufficient or excessive humidity, excessive noise, monotonous or heavy labor responsible for excessive fatigue, overcrowding of work rooms, and faulty employment practices that create irritating human relationships and wrong mental attitudes among workers toward plant management.

Thus, from the known hazard attendant on the use in the plant of poisonous compounds, designated here as the exciting causes, and the known influence of adverse plant conditions, designated here as contributing causes, the hygienist is able to develop a preventive program which reduces the incidence of industrial diseases. The question here is, does he go far enough in determining all the factors that affect the health of the worker and so influence his efficiency as a producer?

The primary function of the hygienist, whether in research or counsel to the plant management, is to evaluate every major factor that has a bearing on the health of the worker or that increases his susceptibility to disease whether of a communicable, degenerative, or industrial nature. Only as his analysis is comprehensive can he state specifically the responsibility of any set of causes. This is not an academic judgment, since the comprehensiveness of his knowledge and the programs based upon it affect alike the practicality of the measures he recommends to the plant and the thoroughness of the protection he gives to the worker. Moreover, in so far as he tries to approach his problem as a scientist, he must include in his research every major field influencing the health of the workers. The line of demarcation of his analysis cannot scientifically be the plant boundary; it must necessarily be advanced beyond this to include the home environment of the worker and the factors there which have a tendency to lower body resistance or increase susceptibility to any disease.

This is conspicuously exemplified in the study of fatigue. The predisposing causes recognized by the hygienist as being associated with certain plant processes or conditions which induce excessive fatigue are not always of plant origin. Indeed, much of the so-called "industrial fatigue" does not arise within the plant, though often so credited, but is a compound of plant activities and home or other environmental conditions which deny to the worker adequate rest. Thus, overcrowded neighborhoods, congested sleeping quarters, poor ventilation with excessive temperatures, all tend to prevent normal rest and deny the recuperation which should follow a day's toil. There is thus produced a cumulative effect from industrial fatigue and disturbed rest which leaves the worker more susceptible to adverse working conditions and processes.

Other non-hygienic home conditions produce results similar to those associated with adverse plant conditions. Moreover, the de-energizing effect of depressive environment has many physical and mental complications which cannot be overlooked. Needless to say, any program for the maintenance of industrial health which concentrates on environment within the plant, and disregards the homes of workers outside, renders the employer a restricted and oftentimes misleading service. It cannot but dub the hygienist as a pseudo-scientist.

To anyone with only a casual knowledge of the housing field these comments may seem unwarranted strictures. It may be alleged that the industrial worker's home is the same type as the average home of the community, and thus its defects should be the concern of the public health department. It may be claimed that lack of a pure water supply, of sanitary equipment or of sanitary sewage and waste disposal, overcrowding, abnormal or subnormal temperatures in certain types of homes, caches of filth and vermin, are the community's obligation, with industry absolved from all responsibility except as its managers are citizens. The industrial hygienist may likewise believe his responsibility is only social and not professional—although his greater knowledge of the consequences of unsanitary conditions should make this interest somewhat keener—and that his sphere of research is restricted to the determination of plant health hazards.

To one who has specialized in both housing and industrial hygiene this attitude seems grossly unscientific. The scientific mind is the searching mind. It is looking for causes. It does not limit its field of research, if by so doing it stays its search short of knowing all the factors that may affect the results. This does not mean that in research into lead poisoning one must initiate a housing program. It does mean that if we ignore the influences of the homes we may mistakenly conclude that certain processes are non-hazardous because we may have a large percentage of employees who live under conditions that help to maintain their physical condition and are therefore less susceptible to special hazards.

The reverse may be true. There is a tendency to blame the plant when the substandard home is equally at fault. The high incidence of special diseases in some industrial plants may be due to the low physical resistance of the workers because they are exposed during non-working hours to slum living conditions. Personal hygiene and certain habits that we associate with predisposing causes are included in our schedules of physical examinations; plant conditions are considered, but living conditions have received only cursory attention. This seems absurd, but it is true. Consequently, the effect of the

work environment outside the plant is not emphasized and any interest displayed in the workers' living conditions is on an emotional basis rather than because the managers consider it good business to assist their employees to attain wholesome homes. Unfortunately, this is the least satisfactory basis for sustained, constructive interest. Yet today in the United States the health hazards to industrial workers which arise from home environment constitute a major problem. The worker is heavily handicapped, his earning capacity reduced, and the employer unnecessarily burdened with added production costs. There is a trend in our cities toward decentralization, in part induced by tax burdens but largely because the labor supply is substandard. Factories are moving to the country where they can find relief from these cost-increasing factors. Any brief survey of urban conditions is sufficient to demonstrate the prevalence of substandard housing in areas where wage earners live.

The characteristic defects of such areas are conspicuous: congested buildings, often of the multiple type of occupancy; room overcrowding; a high percentage of families occupying apartments of 1 and 2 rooms and often living in basements, cellars and back lot houses; insufficient natural light and substandard artificial light; excessive temperatures; inadequate sanitary equipment; insanitary drainage; widespread prevalence of filth both within and without the dwellings; unsafe structures; insufficient play space for children; street hazards; widespread nuisances in the form of defective plumbing, flooded cellars, and damp rooms; general drabness and deterioration of whole neighborhoods which exerts a depressing effect upon the population. Ten per cent of the workers of the country are exposed to some or all of these conditions, nor are they limited to large urban centers although they are more conspicuous there due to segregation. Even the smaller cities and villages have their areas of substandard dwellings and subnormal living.

It is not true, as some imagine, that the slums house only the day laborer. They provide quarters for the so-called skilled-trades workers as well. Throughout the country, these blighted areas are inducing an irregular manner of living; they are furnishing a large percentage of the causes for the spread of communicable diseases; are undermining public health; and in a measure are responsible for the accelerated fatality of the degenerative diseases.

The criticism of the existence of such areas cannot be refuted on the grounds that the inhabitants are content with their homes. There is no justification for inactivity in the belief that such persons, if given good housing, would continue in the manner of living from which they

had been removed. Even if this statement, which is false in 90 per cent of the cases, were true, it would be no answer to the problem presented by these individuals and their homes. Their threat to society alone would justify any amount of attention to housing betterment; but our interest is not in the general menace of existing conditions but rather in their specific handicap to efficient labor, because industry is frequently falsely accused of maintaining hazardous working conditions producing disease and ill-health, when actually the situation is complicated and accentuated by the insanitary state of the homes the workers occupy.

The statistical records prove that occupants of substandard houses and areas show abnormally high morbidity and mortality rates, high percentages of physically unfit workers, many lacking the right mental attitude or intelligence to accomplish the work assigned to them in the plant or to stabilize their employment by continuing their jobs under normal conditions. In times of slack employment, the workers with poor environmental conditions are the first to be laid off, but in times of normal business they must be employed because they constitute the only extra labor supply available. When employed, they contribute a high rate of absenteeism on account of sickness, and cause a costly labor turnover which affects production costs.

Because of the prevalence of adverse living conditions and their reaction upon the physical and mental health of workers, the industrial hygienist must, if he is to do scientific research, carry his studies beyond the plant boundaries, and furthermore if he is to advise the plant management wisely, he must emphasize the disadvantage of such adverse living conditions to industrial workers. Housing specialists do not characterize bad housing as an exciting cause of disease but they do emphatically believe that it is a predisposing cause, which is relatively as important in the final physical breakdown as many exciting causes more frequently emphasized.

The object of this analysis of the health of industrial workers is to assure due valuation of the contributing part played by environmental factors on the one hand, and on the other, to call the attention of plant managers to an aspect of their problem which has been generally neglected. Industry is not to be encouraged to finance housing schemes, but it should formulate a program which will assure the elimination of bad environmental conditions for employees.

Industry does not need to build towns or model dwellings for its workers in order to insure adequate standards of living. It can exert its influence on safe, wholesome living conditions by establishing and giving adequate publicity to an employment policy which gives pref-

erence to those workers who have shown, or will show, an intelligent self-interest in avoiding the occupancy of substandard dwellings or areas.

Where the supply of sanitary houses is adequate but the business judgment of the worker poor, industry can promote thrift associations such as building and loan societies to facilitate home ownership; where the supply within the buying or renting ability of its employees is insufficient, industry can, by means well within its sphere of interest, encourage builders to erect new houses, and urge owners to recondition those old houses which are within a reasonable distance from the plant. If the situation is chronic, as it is in large urban centers, plants can be moved to suburban areas or to smaller towns where more normal living conditions will be assured.

It is not our purpose here to outline and define industry's program for adequate housing of employees so much as to indicate that a reasonably selfish interest dictates a recognition of the part played in economic organization by insanitary housing. Good judgment necessitates the inclusion of housing data in analyses of the hazards of industry, and, in the event that a causal relationship is found between environmental conditions and the diseases they are studying, these findings should be emphasized so that plant managers will feel it incumbent upon them to develop a program adequate to meet the situation.

The Response to the Appeal for Blood for Treatment of Poliomyelitis

OVER 1,100 persons responded to the appeal of the State Department of Health for donors of human immune blood for use in the treatment of cases of poliomyelitis. Actually 1,011 persons were bled between July 27 and October 5, exclusive of the 31 patients at the Georgia Warm Springs Foundation who contributed their blood. In addition, 87 persons were bled twice and many other donors volunteered to be bled a second time. A long and growing list of later volunteers is held in reserve at the State Laboratory. Fifty of the 57 counties in the state outside of Greater New York are represented by at least one donor each. The record is interesting and gratifying from both the administrative and public health standpoints and also as a fine example of immediate state-wide response by individuals to an emergency health appeal.—*Health News*, New York State Dept. of Health, Oct. 26, 1931.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

EDITORIAL COMMITTEE

MAZÝCK P. RAVENEL, M.D., *Editor in Chief*
AUGUSTA E. JAY, *Assistant Editor*

C. C. YOUNG, D.P.H.
CLARENCE L. SCAMMAN, M.D.
ARTHUR P. MILLER, C.E.
EMERY R. HAYHURST, M.D., Ph.D.
HENRY F. VAUGHAN, D.P.H.

ASSOCIATE EDITORS

HENRY F. VAUGHAN, D.P.H., AND IRA V. HISCOCK, Public Health Administration
LOUIS I. DUBLIN, Ph.D., Vital Statistics
ARTHUR P. MILLER, C.E., Public Health Engineering
EMERY R. HAYHURST, M.D., Ph.D., AND LEONARD GREENBURG, M.D., Ph.D., Industrial Hygiene
JOHN F. NORTON, Ph.D., Laboratory
WALTER S. FRISBIE, Food and Nutrition
RICHARD A. BOLT, M.D., Dr.P.H., Child Hygiene
EVART G. ROUTZAHN, Education and Publicity
EVA F. MACDOUGALL, R.N., Public Health Nursing
RAYMOND S. PATTERSON, Ph.D., Bibliography

THE CONGRESSIONAL AWARD TO THE YELLOW FEVER COMMISSION

THE award of medals by Congress to the Army Medical Commission, which cleared up the etiology of yellow fever—Dr. Walter Reed, Chairman, Dr. James Carroll, Dr. Jesse W. Lazear, and Dr. Aristides Agramonte—and to those who took part in the experimental work by offering themselves as subjects and otherwise, calls for more than passing comment.

This Commission was appointed in 1900. Agramonte and Lazear were already in Cuba, and Reed and Carroll joined them in Havana in June of that year. So rapid was their accomplishment that at the 29th annual meeting of the American Public Health Association held in Indianapolis, Reed was able to give a paper called "The Etiology of Yellow Fever—A Preliminary Note," and the *Philadelphia Medical Journal* gave an article on the same subject in its issue of October 27, 1900. On the night of December 31, with only a few minutes of the old year remaining, Reed wrote to his wife, "The prayer that has been mine for twenty years, that I might be permitted in some way or at some time to do something to alleviate human suffering, has been granted! A thousand Happy New Years." Other publications followed rapidly. On February 16, 1901, the *Journal of the American Medical Association* published the article read by Reed before the Pan-American Medical Congress in Havana during that month.

Such is in brief an outline of one of the most remarkable pieces of medical work which the century has seen—one which has saved tens of thousands of lives and tens of millions of dollars. Curiously enough, it excited little interest outside of medical circles. The U. S. Government, which profited vastly by the discovery, took practically no notice of it, and even our universities did scant honor to the men who had carried out this magnificent piece of research at the danger of their lives, one of them indeed having succumbed to the disease, and a second having been desperately ill of it during the work. In 1902, Harvard University conferred the honorary degree of Master of Arts on Reed, and the University of Michigan the degree of LL.D. As early as 1903 an association was formed with the object of calling attention to Reed's work and establishing a memorial. Its work finally took the form of an attempt to raise a fund of $25,000, the income to go to Mrs. Reed and her daughter during their lives, the principal to be applied to the erection of a monument to Reed, or the promotion of research in his especial field. A number of articles were published urging such recognition, and individuals worked to the best of their ability, with little or no effect. The proverbial ingratitude of republics left the work of Reed and the Commission, as well as the devotion of the noble persons who lent themselves to the dangerous work without recompense, practically unnoticed officially. Finally some 30 years later, Congress voted the award of gold medals to the Commission and to 18 soldiers and others who had taken part in the work. These medals were sent during the first week of October, 1931, to the survivors and heirs, since, alas, many of the original workers had passed on.

It may seem a bit ungracious at this time to call attention to the neglect of Reed, his medical coworkers, and others. It is true that all are now delighted at this recognition, late though it comes, and one is

inclined to be a bit cynical over the value of a medal to the families of the dead. On the other hand, we rejoice that our government has at last been awakened to the importance of scientific work, even though late. Had this work been done by an Englishman or Frenchman, for example, the awards would have been prompt and abundant. Jenner, the discoverer of vaccination, received grants amounting to £30,000, and an additional £7,383 from subscriptions in India. Lister was knighted and elevated to the peerage. Pasteur received from the French government a pension of 12,000 francs annually, and many other instances might be cited.

The last surviving member of the Commission, Aristides Agramonte, died in September of this year while in New Orleans preparing to assume his duties as Professor of Tropical Medicine. Lazear died of yellow fever during the work. Reed and Carroll have been dead for approximately 25 years. Some of those who lent themselves for experimental purposes have been in bad health and dire need. One cannot help thinking that it would have been much better to have given these men recognition in the shape of even small pensions than to send gold medals to those who have survived and to the heirs of those who are dead.

MEMBERS OF THE BOARD

MAJOR WALTER REED	DR. JESSE W. LAZEAR
MAJOR JAMES CARROLL	DR. ARISTIDES AGRAMONTE

BITTEN BY INFECTED MOSQUITOES

PRIVATE JOHN H. ANDRUS	PRIVATE JAMES F. HANBERRY
JOHN R. BULLARD	PRIVATE WARREN G. JERNEGAN
PRIVATE A. W. COVINGTON	PRIVATE JOHN R. KISSINGER
PRIVATE WILLIAM H. DEAN	JOHN J. MORAN
PRIVATE WALLACE FORBES	PRIVATE WILLIAM OLSON
PRIVATE LEVI E. FOLK	PRIVATE CHARLES G. SONNTAG
PRIVATE P. HAMANN	PRIVATE CLYDE L. WEST

SLEPT IN INFECTED BEDDING

DR. R. P. COOKE, A. A. SURGEON	PRIVATE JAMES HILDEBRAND
PRIVATE THOMAS M. ENGLAND	PRIVATE EDWARD WEATHERWALKS

THE HEALTH OF PORTO RICAN CHILDREN

THE sanitary problems of one section of the United States may be and generally are of direct significance to the people of all other parts of the country, no matter how distant. Although disease is sometimes influenced by geographical considerations, it is seldom hindered by political barriers, and practically never by social or economic boundaries. National health is more difficult to visualize than

is community hygiene, but it is just as important to every citizen of the nation.

Porto Rico and its distressing health conditions may seem remote to most of us, but this West Indian island has been part of the United States for a third of a century, and its million and a half inhabitants are as much American citizens as the Mayflower descendants of Massachusetts, or the cosmopolitan residents of East St. Louis. A committee of the American Child Health Association[1] has pointed out that ignorance and poverty, and their inevitable concomitants, sickness, disease, and undernourishment, are excessively prevalent on this attractive tropical island. The crude death rate in Porto Rico is nearly double that in the United States, and infant mortality, that sensitive index of sanitary progress, is almost 3 times as high.

According to our standards of age distribution, Porto Rico has about 175,000 children too many. Despite unfavorable economic conditions, the birth rate is estimated to be over 40 per 1,000, and the census of 1920 recorded the amazing fact that 43.3 per cent of the population was under 14 years of age. Contrast this with 31.7 per cent in the United States, according to the figures of the same census.

Tuberculosis, hookworm, malaria, and malnutrition are, next to the abnormal infant mortality, the most serious of the health problems of Porto Rico. Tuberculosis is literally epidemic, with a death rate over 300 per 100,000 population, while malaria and hookworm are endemic. Although the first scientific research which led to the recognition of the American necator was done more than 30 years ago in Porto Rico by Captain Bailey K. Ashford of the U. S. Army Medical Corps,[2] hookworm has never been extirpated from Porto Rico and, according to the investigators, will not be until the inauguration of full-time health service for the entire island.

Malnutrition is ubiquitous in Porto Rico. Sherman[3] states that provision of milk for the children of the island may well take rank as a public health measure along with the hospitalization of open cases of tuberculosis, the field work against hookworm and malaria, and the laboratory studies of intestinal diseases. Since the milk supply is inadequate, the solution of this urgent problem lies in the liberal use of American canned milks. Already, many of the official child welfare stations are supplied with powdered whole milk and where this has been employed, gratifying reductions in infant mortality and improvement in child health have been obtained.

Because of an abundance of sunlight, rickets is rare, although calcium intake is low. Sherman believes that the low calcium and low vitamin A content in the diets of these children probably tends to make

them less resistant to tuberculosis. Anthropometric measurements by Mitchell[1] indicate, moreover, that diet and disease have definitely influenced the stature of Porto Rican children.

Although children of the better socio-economic classes were found to have larger skeletal frame and musculature and greater amounts of subcutaneous tissue than the less privileged groups, dental caries was more abundant in the former class than in the latter. The tendency to dental caries among Porto Rican children operates, in fact, in a reverse manner from what would be expected and as has been the experience in the United States. This strange finding seems inexplicable and the only attempt to explain it is that there is some obscure influence favoring immunity to dental caries which only further study can reveal.

This notable report on child health in Porto Rico contains much that is provocative in the realm of medical science. Not only is it a noteworthy contribution to modern public health, but it raises sociological, economic, and even governmental questions of vast importance. Should one section of the United States be permitted to suffer continuous ill-health when others are favored with skillful attention which serves to reduce death rates and render life longer and more enjoyable? Physical and mental health is conceded to be one of our greatest national assets. Desirable improvement in physical vitality should be the privilege of every American citizen and particularly of those who are to be the citizens of the future.

REFERENCES

1. Crumbine, S. J., Mitchell, H. H., and Tapping, A. M. *Porto Rico—An Inquiry as to the Health of the Children.* Am. Child Health Assn., 1931.
2. Tobey, J. A. *Riders of the Plagues,* 1930.
3. Sherman, H. C. Some Aspects of the Chemistry of Nutrition in Relation to Health. Porto Rico, *J. Public Health & Trop. Med.,* V: 407 (June), 1930.

ASSOCIATION NEWS

NEW MEMBERS

The following list includes applicants who have been approved for membership in the A. P. H. A. by the Sub-committee on Eligibility. These new members have requested affiliation with the sections indicated, and action by the Section Council will follow.

Health Officers Section

James W. Bass, M.D., Dallas, Tex., Director of Public Health

Elmer B. Coolley, M.D., Danville, Ill., Health Commissioner

Pierre G. Fermier, M.D., Leesburg, Ind., Health Commissioner of Koscinsho County

Antonio Fernos Isern, M.D., San Juan, P. R., Commissioner of Health

W. Edgerton George, M.B., North Bay, Ont., District Officer of Health

Drew R. Handley, M.D., Edinburg, Tex., County Health Officer

Dr. J. A. Milne, Jackson, Miss., Director of Field Unit, State Board of Health

John W. Shisler, M.D., Miami, Fla., Director of Public Welfare

Vital Statistics Section

Edward P. Hutchinson, Boston, Mass., Instructor, Vital Statistics, Harvard School of Public Health

Public Health Engineering Section

Thomas R. Camp, Cambridge, Mass., Assoc. Prof., Sanitary Engineering, M. I. T.

James K. Fulson, Cleveland, Miss., Sanitary Inspector

John E. Waaser, Jr., East Mauch Chunk, Pa., Public Health Engineer

Industrial Hygiene Section

Lillian Martin, Sussex, N. J. (Assoc.)

Food and Nutrition Section

Colton R. Clark, Atlanta, Ga., State Chemist, Dept. of Agriculture

Marietta Eichelberger, Ph.D., Chicago, Ill., Director, Nutrition Service, Evaporated Milk Assn.

Harold T. Pratt, Philadelphia, Pa., Charge of Sanitation, Phila. Dairy Products Co.

Child Hygiene Section

John J. Kelly, M.D., Marlboro, Mass., School Physician

Raymond Wing, M.D., Blairstown, N. J., School Physician

Public Health Education Section

Robert R. Finlay, Ann Arbor, Mich. (Assoc.)

D. Clare Gates, Ann Arbor, Mich. (Assoc.)

Maurice S. Goodman, Ann Arbor, Mich. (Assoc.)

Wilton L. Halverson, M.D., Woodmont, Conn., District Health Officer

Lawrence M. Lamont, Ann Arbor, Mich. (Assoc.)

William T. Madden, Ann Arbor, Mich. (Assoc.)

Ruth I. Parsons, Cambridge, Mass., Research Assistant in Health Education, M. I. T.

Wilfred T. Schoen, Saline, Mich. (Assoc.)

Milton W. Sharer, Ann Arbor, Mich. (Assoc.)

Public Health Nursing Section

Helen C. Brennan, Lawrenceville, Va., Special Nurse, U. S. Public Health Service

Margaret M. Gustine, R.N., Ann Arbor, Mich. (Assoc.)

Vivian Legge, St. Albans, Vt., Visiting Nurse, Metropolitan Life Ins. Co.

Epidemiology Section

Morris L. Grover, M.D., Providence, R. I., Director, Rural Sanitation, Rhode Island Public Health Commission

PUBLIC HEALTH ADMINISTRATION

Diphtheria in Bridgeport—Diphtheria had been extensively present in this city for 50 years until a new administrative program was put into effect by the Health Department in March, 1928. Prior to that date release was made on one negative culture from the nose and throat on two successive days. Subsequent to November, 1928, release has been made by multiple negative cultures from the nose and throat on two successive days, and the number of contacts to be cultured has been extended to include all women and children living under the same roof with the patient and likewise the fathers of patients or carriers. Fathers of contacts are examined only when they are food handlers. If a case occurs in a school child all members of the particular class involved are cultured.

A diphtheria immunization program was begun in 1926 and has resulted in the immunization of 51.2 per cent of the school children and about 26 per cent of the preschool group. The authors feel, however, that the immunization treatments have been no more important in the reduction of diphtheria in Bridgeport than the administrative measures established in 1928 which included briefly the release on multiple cultures, bacteriological examination of every possible contact, and the use of Loeffler's fresh blood serum, with or without chloroform, as a medium.—William F. Wild and Kathryn R. Tirrell, Diphtheria Control in Bridgeport, Conn., *J. Prev. Med.*, 5, 303 (Sept.), 1931.

Typhoid in Richmond County—Richmond County is rural, with 35,000 people, two-thirds of whom are colored, and is situated on the southern border of North Carolina near Pinehurst. A County Health Department was organized in November, 1924. During the 9 years prior to 1927 there was an average of 23 cases of typhoid reported yearly, while for the 3 years 1927–1929 the average was 5.3 cases per year.

Particular emphasis has been placed upon health education. An effort has been made to stimulate response from the negroes by approaching this group through their clergy. Results have been most promising and in addition to immunizations against typhoid fever, there were in the first 6 months of 1929, 1,500 protective treatments given against diphtheria among colored children. Smallpox vaccination has also been a by-product of the educational campaign. The authors feel that the greater percentage of the decrease in typhoid has been due to better methods of sewage disposal, especially in the towns of the county, where proper sewage facilities have been installed. North Carolina has a state-wide sanitary privy law which provides that a householder is not permitted to have any type of privy or system of sewage disposal within a mile of any municipality that has not been approved by the State Board of Health. Word of mouth information in the uneducated public has done much to cut down the typhoid fever death rate.—The Control of Typhoid Fever in Richmond County, N. C., A. B. McCreary, *J. A. M. A.*, 97, 998 (Oct. 3), 1931.

Relief in Tuberculosis in Syracuse—It is estimated that Syracuse spends annually about $332,000 in its health and relief services for tuberculosis, of which sum 85 per cent is expended in health services and 15 per cent in re-

lief. Involved in this study were 1,288 tuberculous families known to the Health Department on May 1, 1929, of which number 296 families were classified as economically secure and therefore eliminated from the study. The remaining 992 families were divided into two groups, those who had received relief and those who had not but who had availed themselves of the free health or social services of the community. There were 211 families who had received relief and 781 in the second group. A survey was made of 34 families selected at random from the first group and 36 families from the second group. The conclusion is reached from the samplings made that most of the 781 families in the no-relief group were able to maintain an adequate standard of living. However, there is indication that about 80 of the families in this group were in need of relief. Among the 212 families who had received relief, it was found that in 150 instances the relief given was inadequate.

The general conclusion is that social service and relief in tuberculosis are on the whole totally inadequate to the requirements of the situation and most communities have developed their medical facilities for dealing with tuberculosis more adequately than their social facilities.—Bailey B. Burritt, Social Service and Relief in Tuberculous Families, *Quart. Bull.*, Milbank Memorial Fund, Oct., 1930.

Meningitis in Detroit—In the course of an outbreak of meningococcus meningitis, 6,416 home contacts of 1,272 meningococcus meningitis patients were examined and 685 carriers found among these contacts. There were also examined 1,991 persons not known to have been in contact with a meningitis patient and 19 of these were found to be carriers. The authors conclude that the relative frequency of home-contact carriers cannot be used as a basis for predicting the termination of an epidemic. There was no evidence for either sex of a greater tendency to become carriers. The percentage of carriers among children between 1 and 10 years of age was slightly greater than among older children or adults and the lowest carrier rate was found among infants.

Of the contact carrier 27.6 per cent had meningococci in the nasal pharynx when they were released at the end of a 2-week quarantine period. Of the contact carriers released as negative before the termination of quarantine, 36.6 per cent cleared up within 3 days, 32.3 per cent between the 4th and 6th days, 21.1 per cent between the 7th and 9th days, and 10 per cent between the 10th and 14th days. There is no record of any of the persistent carriers having contracted meningitis. It is essential to make more than one examination to detect the carrier state. In this study 30 per cent of carriers located would have been missed if only one culture had been taken.—Meningococcus Meningitis in Detroit in 1928–1929, J. F. Norton and Irene Baisley, *J. Prev. Med.*, 5, 357 (Sept.), 1931.

Diphtheria Carriers—In Baltimore a study has been made of 3,449 individuals who have been exposed to diphtheria and cultured on the report of the primary case. Of this number 11.7 per cent were found to be positive on morphological diagnosis. There were more carriers among contacts under 10 years of age. Of 348 persons positive on primary culture and cultured again usually after an interval of 10 days, 44 per cent were positive. Among 1,971 individuals negative on primary culture, after 10 days 13.4 per cent were carriers. The total found positive in either primary or later cultures was 31.3 per cent for those under 9 years of age, 20.8 per cent for those 10 to 19

years old, and 19.6 per cent for those under 20 years of age. Examination of sample cultures showed 57.5 per cent of carriers to have virulent bacilli. The total virulent carrier rate for both primary and release cultures was 13.1 per cent.—Y. Kusama and J. A. Doull, Carrier Infection Among Family Associates of Diphtheria Patients, *J. Prev. Med.*, 5: 369 (Sept.), 1931.

Connecticut—The 1930 Department of Health report of Connecticut directs attention to the provision in many states whereby financial aid is available for the formation of district health departments, and indicates that such aid for the smaller towns of the state is desirable and necessary for the success of the district health department idea. Such aid could be furnished on the same basis as is state aid for public health nursing already provided.

During the year the health of the state was reported good, and the general death rate was 11.1, the second lowest in the history of the state. Plans have been perfected for a new building to house the department. An encouraging outlook in diphtheria is reported. Each mother to whom a birth certificate is sent is notified at the same time, and again when the child is 6 months of age, to have the child immunized against diphtheria. Many of the departments of health in the larger cities are doing likewise. Tularemia and undulant fever were made reportable diseases in 1928 and since that time the latter disease is being increasingly reported.

Good progress is reported in the institution of generalized public health nursing service, and there are now 100 towns and cities in the state reported as having such a service. An outstanding event in mental hygiene was an institute carried out for 3 weeks by the State Department of Health with the coöperation of the Connecticut College for Women, the Connecticut Society for Mental Hygiene, the Hartley-Salmon clinic and numerous outside agencies that contributed personnel and aid toward its success.

In the laboratory there was a 12 per cent increase in examinations over the previous year. The division of occupational diseases reported 81 surveys and 25 studies of particular conditions carried on in coöperation with industries. The division of public health instruction notes among other activities 399 lectures by the personnel of the department, and 27 radio broadcastings, during the year.

Wood County, W. Va.—In the annual report for the fiscal year ending June 30, 1931, attention is called to health problems resulting from the severe drought, including the failure of water supplies which affected quantity and quality of many sources. The business depression is considered a causal factor in lowering the resistance of the people. Expenditures of this combined health unit last year amounted to $12,000. A budget of 5 times this amount is suggested as desirable in a comprehensive plan of public health administration outlined in the report. Sir Lauder Benton is quoted on the opening page as follows:

> Like other natural laws, the laws of health are inerrant; ignorance of the laws is not admitted as an excuse any more than motives; and the sentence for breaches is true now as it was ages ago. The soul that sinneth it shall die.

An epidemiological study of tularemia was made during the year, as several cases transmitted to man by handling of diseased rabbits occurred. This was made a reportable disease.

The county is fast becoming highly protected against diphtheria. Complete toxin-antitoxin administrations numbered 1,789; smallpox vaccinations, 808; and antityphoid inoculations,

2,162. There were 45 baby clinics held under the sponsorship of the Junior League with an attendance of 1,259.

We expect fire protection, good roads and an efficient educational system. We pay for these and we do this in a coöperative way. We must have an arousing of the health desire and buy it as we buy all commodities. Individual home owners must pool resources and go after this improvement as a group. Rudyard Kipling in a celebrated stanza has expressed the value of coöperation in accomplishing a desire:

"For this is the law of the jungle,
As old and as true as the sky;
The wolf that shall keep it will prosper,
The wolf that shall break it must die.
As the ivy entwineth the tree trunks,
The law weaveth forward and back;
The strength of the Pack is the wolf,
And the strength of the Wolf is the Pack."

Winnipeg, Man.—On the basis of a population of 209,286, a corrected death rate of 7.6 per 1,000 population is reported for 1930. An infant mortality rate of 57.9 is noted. Attention is called to the epidemic index for diphtheria, which shows a decline continuing below the line of normal expectancy. The preventive work in schools and institutions is believed, in some measure, responsible for the lowering of the rates. There were 231 cases of pulmonary tuberculosis reported with 97 deaths, giving a corrected mortality rate from this disease of 51.6.

It is satisfactory to record that a larger proportion of the milk supply is being pasteurized from year to year. "We still regard this procedure as the greatest safeguard that can be adopted to protect the milk supply of a community."

Under legislation there is noted an amendment to the Public Health Act defining "maternity home" as a building where a woman or girl may be treated during pregnancy or accouchement, and providing that the department of health and public welfare may make rules regulating the management and conduct of child-caring institutions, maternity homes, and other institutions caring for patients, and cancel their permits on failure to comply with such rules.

Rhode Island—The first biennial report of the State Public Health Commission covers the years 1929–1930. Immunization of school children against diphtheria, begun in 1922, has been continued. A decrease in diphtheria death rate to less than half of what it was for the 5-year period before the work started is reported. But analysis of the records shows that over half the deaths from diphtheria occur under the age of 5 years. To reach the preschool child, the Division of Child Hygiene has arranged for immunization in preschool clinics. Emphasis is given in the report to the desirability of full-time health units.

A general death rate of 11.6, on the basis of a 1930 population of 689,524, is recorded, with a birth rate of 17.5. Infant mortality has been reduced over 60 per cent since 1900, the rate for the period 1925–1929 being 71.6. This report has been carefully prepared and contains much information regarding legislation and bureau activities under the newly organized public health commission.

LABORATORY

ANTIGENS IN THE WIDAL TEST

GRACE ELDERING AND NEWTON W. LARKUM, PH. D.

Michigan Department of Health, Lansing, Mich.

PUBLIC health laboratory procedures must of necessity be standardized within certain limits, and as a consequence change is difficult and slow. This is well illustrated in the case of typhoid fever where the Widal test, recognized as the most useful diagnostic measure, has been carried on in the same manner for 30 years in spite of significant discoveries which, although amply verified, are still awaiting general adoption. A consideration of these contributions and the possibility of their inclusion in routine testing is the basis for the following study.

The recognition of the existence of dual antigens in many bacteria, first demonstrated by Weil and Felix,[1] has led to a material accumulation of knowledge on the antigenic nature of bacteria, and the studies in microbic variation have helped to hasten the day when laboratory workers in general might recognize that the supposedly specific antigens used in diagnostic tests and in the production of immunity were specific only within certain limits. The practical value of these investigations has apparently been appreciated in Great Britain more quickly than it has in the United States, and the recent summary of Topley and others[2] constitutes a challenge to the American laboratories.

Many bacteria, those of the enteric group in particular, have been shown to contain two antigens, one heat stable, called the "O" antigen, the other heat labile, called the "H" antigen. The "O" antigen is generally conceded to be somatic in origin, the "H" antigen on the other hand is probably resident in the flagellar material. Under different conditions of growth the proportion of the two antigens will vary so that it occasionally happens that some strains will contain only pure "O" antigen. It is scarcely conceivable that an organism could consist entirely of "H" antigen, yet there are strains that contain a very high proportion of the flagellar substance.

Immunization with cultures having varying proportions of the two antigens results in serums having antibodies reacting with different degrees of intensity with each antigen, and this occurs whether the immunization is caused by an attack of the disease or by deliberate inoculation. In the test usually employed (agglutination) for the recognition of antibodies under these conditions, there is an easy and dependable method for distinguishing between the two types of response. The differences in the two types of agglutination are given in Table I.

In spite of this description, however, the recognition of the two types of agglutination is not always easy until the worker has actually seen suspensions of the two types. The British Medical Research Council has prepared suspensions of these two types, samples of

TABLE I

"O" agglutination
granular
forms slowly
settles slowly
flakes small and uniform in size
supernatant fluid clear
sediment scanty and difficult to dislodge

"H" agglutination
flocculent
forms rapidly
settles rapidly
flakes large and varying in size
supernatant fluid cloudy
sediment voluminous and easily dislodged

which were sent to us through the kindness of Dr. W. W. C. Topley and Dr. A. D. Gardner. With these suspensions and their agglutinating serums, we were able to determine the type of antigen in routine use in our laboratory and to study serums sent in for diagnosis. The technical details follow:

1. *Preparation of Antigens*—Veal infusion broth, pH 7.48, was inoculated with Felix's typhoid strains, "O" 901 and "H" 901, incubated at 37° for about 20 hours, and killed with 0.2 per cent formalin. The suspensions were diluted with saline to conform in turbidity with the standard received. In character of agglutination the "O" compared very well with that prepared by the Lister Institute, but the "H" yielded clumping very similar to the "O." After several attempts to produce an "H" antigen with this culture, we gave it up. Our own antigen used routinely gave a very pretty flocculent agglutination. As it seemed probable that the "O" was the antigenic factor that was added in the new technic, we decided to use only this in comparison with our routine test. The antigen used in this routine procedure is a saline suspension of organisms to which 0.1 per cent formalin is added.

2. *Serum dilutions*—Serum dilutions for the tests were from 1:40 to 1:640, or higher.

3. *Incubation*—Reading was made after 2 hours' incubation at 56° in a water bath. Final reading was made when the tests had stood overnight at room or icebox temperature. The 2-hour period is considered long enough to allow the "H" agglutination to occur, but we were advised that the test with the "O" suspension should not be read until it had incubated 4 hours, and that a longer period of 16 to 20 hours at 56° was necessary before final reading could be made. It was our experience that whether the tests were left at icebox, room, or water bath temperature after the primary incubation was immaterial, but that significant agglutination of the finely granular "O" type did occur during this added period.

4. *Reading*—We were advised to make readings by artificial light, or, if by daylight, to pass a finger up and down behind the tube. Our readings were made by daylight, and to the highest dilution showing clumps just visible to the naked eye.

The typhoid 703 is the strain used in the preparation of our diagnostic antigens. From Table II it will be seen that although our antigen contains both "O" and "H" antigen, it is more rich in the "H" fraction and hence is not satisfactory for determining the type of agglutination present in a given serum.

Using our regular antigen (703) and

TABLE II

COMPARISON OF OUR ANTIGENS AND SERUMS WITH THOSE OF THE LISTER INSTITUTE

Serum	*Antigen*	*Agglutination*
Our typhoid strain 706	Our typhoid strain 703	1:20,480 (flocculent) (titer not determined)
Our typhoid strain 706	Lister Institute "O"	1:1,280 (granular)
Our typhoid strain 706	Lister Institute "H"	1:20,480 (flocculent) (titer not determined)
Lister Institute "O"	Our typhoid 703	1:320 (granular)
Lister Institute "O" prepared by us	Lister Institute "O" prepared by us	1:5,120 (granular)
Lister Institute "H"	Our typhoid 703	1:640 (flocculent)

TABLE III

SERUMS POSITIVE WITH THE ONE ANTIGEN, NEGATIVE WITH THE OTHER

	Positive with our Antigen, Negative with "O" Titer	Remarks	Negative with our Antigen, Positive with "O" Titer	Remarks
1.	1:160	+	1:160	+
2.	1:40	+	1:80	+
3.	1:80	+	1:320	+
4.	1:80	?	1:640	+
5.	1:2,560	?	1:320	+
6.	1:320	?	1:640	+
7.	1:160	?	1:320	+
8.	1:80	?	1:80	+
9.	1:160	?	1:80	+
10.	1:320	?	1:160	+
11.	1:160	?	1:640	+
12.	1:80	?	1:80	?
13.	1:320	?	1:80	?
14.	1:80	?	1:640	?
15.	1:80	?	1:160	?
16.	1:80	—	1:80	?
17.	1:80	—	1:80	?
18.	1:80	—	1:160	?
19.	1:160	—	1:80	?
20.	1:160	—	1:160	?
21.	1:80	—	1:320	?
22.	1:40	—		
23.	1:80	—		
24.	1:80	—		

+ Known to be typhoid.
? No data available.
— Not considered typhoid.

the "O" antigen of Felix we carried out 419 tests following in all details the methods outlined above. In 307 instances the results were negative with both antigens, and in 70 instances both antigens gave a positive result. Our antigen picked up 24 positives which were negative with the "O" antigen, but in 21 cases the "O" antigen gave a positive result when the "H" antigen was negative. As they stand these results have no relationship to the clinical situation however and it is, of course, impossible to state whether all of these positives represent actual cases. This brings up another question, namely, the value of these antigens in differentiating between the agglutinins of infection and those of inoculation. This we will consider briefly later.

TABLE IV

SERUMS POSITIVE WITH BOTH ANTIGENS

59 serums had practically the same titer with both antigens.
11 serums varied as follows:

	Our Antigen	"O" Antigen	Remarks
1.	1:80	1:200	+
2.	1:80	1:640	+
3.	1:2,560	1:160	+
4.	1:320	1:80	+
5.	1:5,120	1:320	+
6.	1:2,560	1:640	+
7.	1:160	1:640	?
8.	1:160	1:40	?
9.	1:40	1:160	—
10.	1:640	1:80	—
11.	1:80	1:80	—

Tables III and IV give the results of our efforts to determine the relationship between our results and the clinical condition, and present the actual titers obtained in those instances where positive agglutination was obtained.

It has been claimed by Felix that inoculation with heat-killed vaccines produces agglutinins of the "H" type while an attack of the disease results in

the production of "O" agglutinins. Hence, it is argued that the presence of "O" agglutinins indicates infection in the individual concerned. Of course it is obvious that this would hold only if vaccines were prepared from cultures having a preponderance of "H" antigen, and it is further obvious that quantitative differences in the two agglutinins would result according to the vaccine in use at a particular time. We tested 22 serums from individuals previously vaccinated, using both antigens, and the results appear in Table V.

A casual study of this table reveals the relative accuracy of the claims of Felix. Although residual "O" agglutinins were present in some instances, they are present in quantity only after infection.

In connection with studies on the use of bacteriophage lysates as antigens for typhoid prophylaxis one of us (L) immunized numerous individuals with bacteriophage. Although at the time this work was done a pure "O" antigen was not available, the small flaking type of agglutinin seemed to predominate. In the two instances shown in Table V the proportion of "O" antigen in bacteriophage immunized individuals was proportionately large. To be sure, these people later received vaccine, yet inasmuch as in no case did we find "O" agglutinins to such a high titer following vaccination, it would appear the result was caused by bacteriophage inoculation.

SUMMARY AND CONCLUSIONS

It is not our intention to make recommendations as a result of these studies. They are as yet too fragmentary and too limited. They do, however, verify the results reported from England and seem to us to indicate not only the desirability but the necessity for a recognition of these factors in the Widal test as done in this country. We have,

TABLE V

INOCULATED INDIVIDUALS—COMPARISON OF TITERS

	Our Antigen	"O" Antigen	Date of Inoculation
1.	1:160	Negative	Unknown
2.	1:160	"	"
3.	1:160	"	"
4.	1:80	"	"
5.	1:80	"	"
6.	1:80	"	"
7.	Negative	1:80	"
8.	1:160	1:80	"
9.	1:160	1:80	"
10.	1:320	Negative	"
11.	1:80	"	"
12.	1:160	"	"
13.	1:40	"	"
14.	1:320	"	"
15.	1:320	1:160	Bacteriophage 1929 Vaccine 1930
16.	1:320	1:320	Vaccine 1930
17.	1:640	1:640	Bacteriophage 1928 Vaccine 1930
18.	Negative	1:40	Bacteriophage 1929 Infection 1930
19.	1:640	1:320	Bacteriophage 1929 Infection 1930
20.	1:640	Negative	Vaccine 1927
21.	1:1,280	"	Vaccine 1927, 1931
22.	1:80	"	Vaccine 1918, 1923, 1929

These people were not ill at the time the tests were made. Residual "O" agglutinins are present in the inoculated though they are not found so frequently as the "H" type.

however, felt justified as a result of this work in including the "O" antigen in our routine diagnostic tests. After several months it would appear that this procedure more than justifies the slight increase in work.

REFERENCES

1. Weil, E., and Felix, A. The Qualitative Receptor Analysis in its Application to Typhoid Fever, *J. Immunol.*, 9, 115: 1924.

2. Topley, W. W. C., and Wilson, G. S. *The Principles of Bacteriology and Immunity*. Vol. II, p. 998.

A MODIFIED A. P. H. A. MILK DILUTION PIPETTE

PAUL S. PRICKETT, PH. D., AND NORMAN J. MILLER

Bacteriological Laboratories, Mead Johnson & Co., Evansville, Ind.

IN recent years a pipette calibrated to deliver both 1 c.c. and 0.1 c.c. has come into widespread use, especially in laboratories where many milk samples are plated. This 1.1 c.c. pipette, suggested by Dr. S. H. Ayers, U. S. Department of Agriculture, is recommended in *Standard Methods of Milk Analysis*[1] of the American Public Health Association. Probably this is why several laboratory supply house catalogs list it as the "A. P. H. A. Milk Dilution Pipette," although this style of pipette is commonly used in plating products other than milk.

Standard Methods cites the advantages of the 1.1 c.c. pipette for preparing two dilutions from the same water blank, for example, seeding the 1:100 and 1:1,000 plates from the 99 c.c. blank. Many laboratories prepare duplicate plates of the same dilution for incubation at the same temperature. Other laboratories likewise prepare duplicate plates, but incubate one set of plates at one temperature and the other set at another temperature. At any rate, with many laboratories making routine tests for thermophiles in milk and other products, the number of plates poured has been increased; consequently, a means of shortening the time of seeding plates without sacrificing accuracy or increasing the chance of contamination appears desirable.

FIGURE I

These factors led one of us (P. S. P.) to design a pipette based on the 1.1 c.c. pipette, that enables the analyst to seed duplicate plates of two different dilutions from one filling of the pipette. This new pipette (see Figure I) is calibrated to deliver 2.2 c.c. as follows: two portions of 0.1 c.c. each and two portions of 1 c.c. each.

Experimental lots of these pipettes were secured through the coöperation of a laboratory supply house.* The specifications of the 2.2 c.c. pipette follow closely the recommendations made by the committee of dairy bacteriologists that met in Geneva, N. Y., in 1926. Note that the bore is only slightly constricted at the tip; that the tip is blunt to prevent breakage; that the calibrations extend completely around the pipette; and that the distance between the 2.2 c.c. mark and the end of the pipette is sufficient for ease in handling and in filling the pipette without getting the liquid into the user's mouth.

* Will Corporation, Rochester, N. Y.

Calibration of these pipettes, by measuring mercury into them and also by weighing the amounts of milk which they deliver, showed that their variations came within the tolerances allowed for the standard 1.1 c.c. pipette.

These 2.2 c.c. pipettes were compared with the 1.1 c.c. pipettes by plating numerous samples of powdered and fluid milks whose plate counts ranged from a few hundred to several million per unit. Using the counts obtained with the 1.1 c.c. pipettes as a standard, the average per cent variation in counts obtained with the 2.2 c.c. pipettes was 5.2 per cent. The counts were based on duplicate plates of each dilution prepared; furthermore, the ratios between the numbers of colonies developing on the plates seeded with the 2.2 c.c. pipettes from different dilutions prepared from the same water blank were in proper proportion, i.e., approximately 10:1.

The saving of time is an important factor in favor of the modified pipettes. Using both standard 1.1 c.c. pipettes and the 2.2 c.c. pipettes, the average amount of time required to prepare consecutive dilutions from 1:100 through 1:1,000,000 and to inoculate duplicate plates from each of these dilutions was determined. It was found that the average time required when using the standard 1.1 c.c. pipettes was 12.4 per cent longer per dilution than when the 2.2 c.c. pipettes were used.

We are not unaware of the fact that this pipette may be criticised because of its increased number of calibrations, for the larger the number of calibrations on a pipette, the less simple it is to manipulate. Furthermore, the smaller the volume that is measured, the larger is the per cent of error of the inaccuracies in measuring. However, these pipettes in the hands of laboratory technicians have given results that are as accurate as those obtained with the 1.1 c.c. pipettes recommended in *Standard Methods*. Another factor in their favor is that they are used only once for preparing duplicate plates of two different dilutions and are then washed.

Albus [2] has discussed the inaccuracies introduced in plate counts when the same pipette is used more than once. He found this factor to apply particularly to milk, especially in the lower dilutions. The fact that only one filling of the 2.2 c.c. pipette is required to inoculate the same number of plates as two fillings of the 1.1 c.c. pipette also lessens the possibility of outside contamination. Finally, with these 2.2 c.c. pipettes, a small but a distinct saving in time is made, a factor important not only in itself, but also in securing greater accuracy in the enumeration of bacteria by the plate-count method, since the interval of time between seeding and pouring the plates is decreased.

REFERENCES

1. *Standard Methods of Milk Analysis*, 1928, A. P. H. A., 5th ed., 1927, 68 pp.
2. *J. Bact.*, 16: 269, 1928.

VITAL STATISTICS

The Health Record for Delaware, 1930—The significance of the death returns for the State of Delaware cannot be appreciated without consideration for the unusual composition of the population of this state. According to the Census, there were in 1930 205,778 white persons and 32,602 colored, making a total of 238,380, of whom approximately 86 per cent were white and 14 per cent colored. Beside this composition factor, there is another which is important in the consideration of the deaths from various causes, i.e., a preponderance of persons of the higher age groups, influencing the death rates from certain of the degenerative diseases, which come with advancing years.

In view of these considerations, the 1930 general death rate of 13.6 per 1,000 population was a fairly favorable one, even though it was slightly higher than the 1929 rate of 13.2. The State of Delaware attained the lowest death rate from tuberculosis in its history, 50 per 100,000 for the white population and 190 for the colored, totaling 164 deaths in 1930 as compared with 194 in 1929. Grouping the 7 infectious diseases—typhoid, measles, scarlet fever, whooping cough, diphtheria, influenza, and tuberculosis—there were in 1930, 241 deaths from these causes combined, as opposed to 329 in 1929, a reduction of about 25 per cent. Typhoid and diphtheria were the only ones of these diseases to show increases, typhoid from 5 deaths in 1929 to 11 in 1930, and diphtheria from 14 in 1929 to 20 in 1930. Measles, whooping cough, and influenza showed marked decreases, measles from 6 to 2, whooping cough from 23 to 9 and influenza from 83 to 31, from 1929 to 1930.

There was a slight reduction in the number of cancer deaths, from 244 in 1929 to 240 in 1930, of which number 217 were among the white population and 23 among the colored, the death rate from cancer being 70 per 100,000 for the colored and 106 for the white population. This extremely high rate among the white population was attributed partially to the preponderance of persons of the older age groups, which factor was considered important also in explaining the increasing death rate from diabetes, though in this case the rate for the colored population (28) exceeded that for the white (22). The infant death rate showed little improvement, the 1930 rate for the white population (71) being the same as that for 1929, and the rate for the colored population (126) being slightly lower than the 1929 rate of 133. There was an increase from 19 to 28 in the number of puerperal deaths among the white population and from 6 to 7 among the colored population.—*Delaware Health News*, 8: 14–18 (July–Aug.), 1931.

Health Conditions in England and Wales, 1930—According to the *Registrar-General's Statistical Review for England and Wales*, which has recently been published, the birth rate for 1930 remained the same (16.3 per 1,000 living population) as that for 1929, while the death and infant mortality rates reached new low levels in 1930. There were 38,908 deaths of infants under 1 year of age, giving a mortality of 60 per 1,000 live births as compared with 74 for 1929. Contrasted with this great reduction in infant mortality, there was a slight increase in puerperal mortality, which was 4.40 in 1930 as against 4.33 in 1929.

There were 455,427 deaths from all

causes, giving a death rate of 11.4 in 1930 as compared with 532,492 deaths and a death rate of 13.4 in 1929. The tuberculosis death rate for 1930 was the lowest ever recorded in the country. The number of deaths from all forms of tuberculosis was 35,745 against 37,990 in 1929 and 36,623 in 1928. The death rate in 1930 was 89.8 per 100,000 population as compared with 95.9 in 1929; for pulmonary tuberculosis, the rates for 1930 and 1929 were 73.9 and 79.3 respectively. Others among the important causes of death, which showed striking reductions in death rate in 1930 as compared with 1929, were pneumonia, which dropped from 110.7 deaths per 100,000 in 1929 to 69.6; whooping cough, which dropped from 16.0 in 1929 to 5.1 in 1930; and influenza, which declined from 73.4 in 1929 to 12.6 in 1930. It is interesting to note a substantial reduction in the death rates from heart diseases (243.6 in 1929 to 226.4 in 1930); diseases of the arteries (56.6 in 1929 to 51.2 in 1930); and cerebral hemorrhage, apoplexy, etc. (63.7 to 60.7).

As contrasted with these reductions in death rates, there were increases in measles from 8.6 in 1929 to 10.5 in 1930; in cancer from 143.7 to 145.4; in suicide from 12.6 to 12.7; in chronic nephritis from 36.2 to 36.3, and in appendicitis from 7.1 to 7.4. Death rates which remained the same in 1930 as they were in 1929 were those for diabetes (14.2) and homicide (0.5).—*The Registrar-General's Statistical Review of England and Wales for the Year 1930.*

Provisional Birth, Death, and Infant Mortality Figures, U. S. Birth Registration Area, 1930—The Department of Commerce, through the Bureau of the Census, Division of Vital Statistics, recently reported provisional figures for the births, deaths and infant mortality in the U. S. Registration Area (exclusive of Utah) for 1930. This area in 1930 included all of the United States except South Dakota and Texas, or 94.7 per cent of the total population in the United States. Figures for Utah were omitted because transcripts for 1930 had not yet been received from that state.

According to this report, the birth rate for 1930 was 18.9 per 1,000 population, the same as the rate for 1929. In 26 states birth rates were higher in 1930 than in 1929; in 12 states the rates were lower; and in 7 they remained the same. The highest birth rate (28.5) was for New Mexico. This state also attained the highest birth rate in 1929. The greatest increases in rates over 1929 were 1.9, 1.4, and 1.3 for Arkansas, New Mexico, and Arizona, respectively. The lowest birth rate (14.1) was for Oregon, which state also had the lowest rate in 1929.

The birth registration area (exclusive of Utah) had a death rate in 1930 of 11.3 per 1,000 population. This is 0.6 lower than the corresponding rate for 1929. When compared with 1929, 37 states had lower rates in the later year, 6 had higher rates, while the rate for 2 states did not change. The highest death rate (15.5) was for New Mexico and the lowest (7.9) was for North Dakota.

The infant mortality rate of 64.2 per 1,000 live births for 1930 was the lowest rate since the establishment of the birth registration area in 1915. Thirty-seven states had lower infant mortality rates in 1930 than in 1929. The greatest decreases were 17.1 and 10.2 for Arizona and Rhode Island, respectively. The highest rates were 144.9 for New Mexico and 116.2 for Arizona. The lowest rates were 48.4 for Washington, 49.2 for Nebraska, and 50 for Oregon.

From statistics of infant mortality for 86 cities having 100,000 or more inhabitants in 1930, only 21 of these cities showed higher rates in 1930 than in

1929. The highest rates were 108.8 for Chattanooga, 102.9 for Nashville, and 101.2 for Memphis. The lowest were 37.1 for Seattle and 39.8 for San Francisco.—*Pub. Health Rep.*, 46: 2373–2374 (Oct. 2), 1931.

Principal Causes of Death in Massachusetts in 1930—There was a decrease in the general mortality of Massachusetts in 1930 as compared with 1929, the deaths in 1930 numbering 49,503. Based on the U. S. Census population of April 1, 1930, these deaths correspond to a death rate of 11.6 per 1,000 population, which is the same rate as that for 1927, the lowest rate ever recorded in Massachusetts; the rate in 1929 and 1928 was 11.9.

More than one-third of the 49,503 deaths reported in 1930 were caused by organic heart disease (including pericarditis), pneumonia (including broncho-pneumonia), and tuberculosis, all forms. These diseases, together with cerebral hemorrhage, cancer, Bright's disease and nephritis, external causes, malformations and the diseases of early infancy, caused 75 per cent of the deaths for the year.

Pneumonia caused 4,043 deaths in 1930, or 95.1 per 100,000 population. It was responsible for 4,906 deaths, or 112 per 100,000 population in 1929 as compared with 106.9 in 1928. The deaths from heart disease in 1930 numbered 11,353, or 22.9 per cent of all deaths, or 267.2 per 100,000 population, as compared with 11,528, or 22.1 per cent of all deaths, or 263.2 per 100,000 population in 1929. Tuberculosis in its various forms claimed 2,734 victims in 1930, of whom 2,423 died from tuberculosis of the respiratory system. Deaths due to the latter cause constituted 4.9 per cent of all deaths during the year, as compared with 8.1 per cent for the 5 years from 1912 to 1916. In 1910, the death rate from pulmonary tuberculosis was 133.2 as contrasted with 57 in 1930. Cerebral hemorrhage was the cause of 4,108 deaths, or 96.7 per 100,000 population.

Cancer and other malignant tumors caused 5,813 deaths in 1930, corresponding to a death rate of 136.8 as compared with 129.5 in 1929. Of the deaths from cancer 28.4 per cent resulted from cancers of the stomach and liver. The death rate from cancer has risen from 89.9 in 1910 to 136.8 in 1930. The increase has been continuous. It is possible that at least a part of this increase is due to more correct diagnosis and greater care on the part of the physicians in making reports, but a part at least is due to the lengthened span of life, resulting in a larger number of people reaching the older age groups. Diabetes was the cause of 1,021 deaths in 1930, being responsible for a rate of 24.0 per 100,000 population. The rate from this disease has shown a steady increase for the last 5 years, being 22.8 for 1929, 21.5 for 1928, and 19.8 for 1926 and 1927. Bright's disease and nephritis were the causes of 3,617 deaths in 1930, corresponding to a rate of 85.1 per 100,000 population, as compared with 79 in 1929. There were 3,485 deaths caused by Bright's disease, and 132 by acute nephritis.

Congenital debility and malformations caused 1,929 deaths in 1930, corresponding to a rate of 45.4 per 100,000 population. Diarrhea and enteritis caused 572 deaths in 1930, or 13.5 per 100,000 population. For the last 10 years this rate has shown a marked decline. Of the total number of deaths, 71.7 per cent charged to diarrhea and enteritis in 1930 were of infants under 2 years of age. The rates from this cause for all ages have declined steadily, being 21.8 in 1926, 17 in 1927, 15 in 1928, and 12.6 in 1929. Diphtheria and croup deaths numbered 182, or 4.3 per 100,000 population in 1930. Typhoid fever has shown a steady decline since

1910, having dropped from 12.2 in that year to 0.9 in 1930. This decline is greater, relatively, than that shown for any other important cause of death.

Alcoholism caused 214 deaths in 1930, a decrease of 67 from those in 1929 and corresponding to a rate of 5 per 100,000 population. Influenza was responsible for 270 deaths, or 6.3 per 100,000 inhabitants, as compared with 352.7 in 1918, 17 in 1926, and 27 in 1929.

The principal epidemic maladies of childhood (whooping cough, measles and scarlet fever) were together responsible for 417 deaths of both adults and children, or 9.8 per 100,000 population in 1930, the rates for the three diseases separately being 4.3, 3.2, and 2.3 respectively. Death rates from violence during the past 5 years per 100,000 population were 79.3 in 1926, 79 in 1927, 82.5 in 1928, 81.8 in 1929 and 82.3 in 1930. Automobile accidents and injuries caused 799 deaths in 1930, or 18.8 per 100,000 population, which is a slight increase over the last few years.—*Annual Report on the Vital Statistics of Massachusetts,* 1930.

Births and Deaths in South Australia—In many respects the latest returns from the State of South Australia show vital indices with which western Europe is familiar. A birth rate declining more rapidly than the death rate, a corresponding decline in the rate of natural increase of population, and considerable reduction in the mortality from tuberculosis, but an increased loss from cancer. Both the birth rate (17.2 per 1,000) and the crude death rate (8.4 per 1,000) were in 1930 the lowest in the records of the state.

For many years South Australia, in common with the other states of the Commonwealth and New Zealand, has had a very low mortality rate for infants under 1 year of age, compared with other countries. In 1930 it was as low as 48 per 1,000 live births. The annual mean death rate of infants under 1 year of age for the 5 years 1895–1899 was 110, and for the 5 years 1925–1929 only 47—a fall of 63. Most of this improvement is shown to have taken place at ages above 1 month and under 12 months.

The death rates under 1 month, under 1 week, and under 1 day of age show very little progress and the great majority of those dying under 1 month of age died from prenatal causes. These facts indicate the direction in which efforts for the saving of infant life should be directed. The Mothers' and Babies' Health Association, of which there are 44 branches in the state, is endeavoring to improve the position.

Over half the population are resident in the "metropolis," defined as an area approximately within a 10-mile radius of the General Post Office, Adelaide, and roughly equal proportions of the working population are employed in agricultural and industrial occupations. —*Lancet,* 2: 415, 1931; *Canad. M. A. J.,* 25: 506 (Oct.), 1931.

PUBLIC HEALTH ENGINEERING

CONTAMINATION OF MAINS BY JUTE PACKING

CHARLES H. SPAULDING

Chemist and Superintendent Water Purification, Springfield, Ill.

THE practice of sterilizing new mains after laying and before placing in service is recognition of the fact that water has been found below bacteriological standards when drawn from new pipe. Brush [1] states that in New York City it has been the practice for many years to place chloride of lime in new mains, but the discussion of his paper and that of Absher [2] brings out that few of even the largest cities of the United States were sterilizing new mains in 1925. The adoption of this measure of safety in many places shows progress during the past 5 years, but even now the practice has not become general. For example, Kehr [3] states that in Kansas, which we regard as a progressive state in sanitary affairs, mains are simply flushed after laying.

Kehr brings up a point which is particularly pertinent to the present discussion, namely, the *persistence* of contamination in unsterilized mains, lasting from 3 to 12 months and averaging 6½ months in 9 cases. The same picture is presented by Olson and Wright [4] in a case where a whole year elapsed before a count of 3,000 *B. coli* per 100 ml. subsided to 1 per 100 ml.

The significance of the bacterial counts in these cases was unknown and likely to be questioned. In discussing Absher's paper, Catlett, while obviously favoring sterilization, incidentally discounts the significance of the *B. coli* findings in new mains for reasons not given. Kehr mentions no cases of sickness resulting from unsterilized mains; nor do Olson and Wright. Sullivan [5] finds 1 instance in which a state board of health attributed to unsterilized mains several cases of typhoid which could not be allocated elsewhere. One can understand that the evidence would likely be tenuous in such cases. On the other hand, the sanitary survey generally indicates the need of sterilization. Mains often lie near sewers. Frequently sewers must be broken in running a main. There are many known hazards and others unknown. Certainly, to sterilize the main before placing in service is a step in the right direction. However, if we eliminate the sources of contamination, the job may be easier.

There is ample evidence that the coli-aerogenes group has been found so profusely under apparently innocent circumstances that it has been somewhat discredited as an index of pollution in those circumstances. Gerstein [6] describes errors in sampling water from Chicago tunnels due to *B. coli* on leather packing, and mentions similar experiences related by Houston.[7] Greer and Kells [8] grew *B. coli* in enormous quantities on leather washers submerged in water. I have [9] found *B. aerogenes* growing abundantly on pump packing; and Mellen [10] has had similar experience. Mallman [11] reports *B. coli* from small pressure water systems of unquestioned safety; and more recently

---

* Presented before the Public Health Engineering Section of the A. P. H. A. at the Sixtieth Annual Meeting at Montreal, Canada, September 17, 1931.

the Illinois State Department of Public Health has eliminated *B. coli* from a well supply by inserting layers of HTH between the packing rings in the gland of the pump.[12]

The 1929 report of the Committee on Water Supply of the A. P. H. A.[13] is devoted to aftergrowths of bacteria including *B. coli* in mains, showing the influence of organic matter, particularly algae, from open reservoirs. Baylis[14] has demonstrated the growth of *B. coli* on dead plankton. Thus we see that *B. coli*, though admittedly the best criterion we have, cannot be accepted blindly as indication of serious pollution; and it becomes highly desirable to know their origin when present.

The writer has had considerable experience with aftergrowths of coli-aerogenes following the installation of new mains, the mains having been heavily chlorinated in each case. In some cases the bacteria found belonged to the *B. aerogenes* classification and their importance was discounted, as seems justified by present knowledge. In other cases, typical *B. coli* has been found in concentrations of 100 to 1,000 per 100 ml.; and it has been necessary to flush and chlorinate repeatedly in attempts, which were not always successful, to eliminate the offending organisms. One might expect a satisfactory sample from a main which appeared physically clean when laid; which had been plugged whenever work was interrupted, as at night; which was thoroughly flushed and then treated with chlorine in such concentration that 180 p.p.m. remained after standing 48 hours. Yet immediately following such a treatment, *B. coli* has been found in 0.1 ml. as soon as the chlorine was removed by flushing. Such behavior suggests a source of the organisms which the chlorine cannot reach effectively.

Such a source may be the common jute packing which is perhaps universally used to yarn the joints of cast iron pipe lines before the lead or joint compound is poured. For those who are not familiar with this operation, it may be described briefly as follows:

> The small or spigot end of a length of pipe is placed in the bell end of the adjoining length. This leaves an annular space formed by the bell around the spigot, which space is to be filled with melted lead. A ring of jute yarn is pushed or driven into the back of this space to close the crack between the pipes and prevent the molten lead from flowing into the main before it solidifies. A gate is then placed in front of the opening and the metal is poured. The yarn remains in the system in a position which is very difficult to reach with a disinfectant, since the only communication with the main stream of water is a narrow crack between the two lengths of pipe. Furthermore, it is capable of absorbing extremely high concentrations of chlorine, so that the small amount of chlorinated water penetrating this space is entirely inadequate to sterilize even when the concentration of chlorine is high.

There are various grades of jute packing. It is customary in ordering to specify tarred, untarred, or unoiled. The tarred jute is said by one manufacturer to be little used for water pipe on account of the odor. So-called untarred jute is lubricated with oil and is used extensively, as is also the unoiled, which is the dry fiber. Special grades of unoiled jute are available under various trade names or brands.

A considerable number of samples of jute submitted by jobbers and factories have been examined, as well as several department stocks. The method of examination is simple. One-tenth gm. of the fiber is taken aseptically from an inner strand of the twist and placed in a flask containing 100 ml. of sterile, distilled water. This is allowed to stand over night at laboratory temperature, after which a series of dilutions is planted in lactose broth, or in some cases Noble's pour plate medium has been used. Usual confirmation methods are employed. The results of examination of the first fifteen samples are shown in Table I. There are two tarred sam-

TABLE I

SHOWING CULTURES PRODUCED BY 0.1 GRAM SAMPLES

Number	Description	Coli-Aerogenes per Flask after 24 Hours	Coli-Aerogenes per lb. Jute
1	Unoiled	1,000	4,500,000
2	Untarred	0	0
3	Braided (Dry)	0	0
4	Untarred	10,000	45,000,000
5	"American Hemp"	Innumerable	—
6	"Italian Hemp"	5,400	24,000,000
7	Unoiled	21,000	95,000,000
8	Tarred	0	0
9	Untarred	63,000	285,000,000
10	Unoiled	16,000	72,000,000
11	Unoiled	50	226,000
12	Tarred	0	0
13	Untarred	10	45,000
14	Braided (Dry)	0	0
15	Special (Dry)	0	0

ples, both of which were sterile. There are four other sterile samples, three of which are grades sold at a premium and probably not generally used. The remaining nine show coli-aerogenes group in the flasks ranging from 10 to 63,000.

Assuming jute in the mains will produce at the same rate, the number per lb. will range from 45,000 to 285,000,000. If the flasks are examined after 48 hours or longer, the numbers have increased 5 to 10 times, or even more. This group of contaminated samples is believed to represent jute which is widely used for water mains as it includes samples which were first submitted. One manufacturer has recently sent in a sample which was sterile and had probably been sterilized by steam. It is possible that some sterilized jute is now being sold.

In order to simulate conditions in a main, jars were made of short bell fittings into which plugs were leaded, using portions of the packing under examination to hold the lead. The plug then formed the bottom of the jar with the packing exposed to the water as in a main. No pressure was available to force the water through the small crack into intimate contact with the jute, and, therefore, in making the joint, the plug was kept from seating snugly by inserting a wire across the pipe, thus leaving the jute more exposed to compensate for lack of pressure. Sterile water placed in these jars made up with the sterile grades of packing remained sterile. When the other grades were used, various concentrations of *B. coli* were obtained.

Samples of contaminated jute used in making the joints were exposed over night to water which contained 9 p.p.m. residual chlorine. The result was sterile water on the following day; but upon replacing the highly chlorinated water with sterile tap water, abundant contamination appeared in 24 hours. One example is sufficient for illustration, viz., the jar chlorinated for 24 hours and refilled with tap water contained no *B. coli* immediately after refilling; but in 24 hours it was positive for *B. coli* in 0.1 ml.; and in 48 hours it was positive in 0.01 ml.

The significance of this contamination

is next to be considered. The fact that nearly all jute comes from India is not reassuring to an occidental. The fiber is derived from the bark of two closely related plants, *Corchorus capsularis* and *C. olitorius*, which have been cultivated in India for several centuries at least, and which form the basis of an important textile industry. They grow 5 to 8 ft. high, and when the crop is ripe they are cut and tied in convenient bundles. The following excerpt is taken from the 1929 edition of *Encyclopedia Americana:*

> Extraction of fiber is accomplished by steeping the bundles in stagnant water, covering them with jungle plants, clods of earth or cow dung. When the setting is complete, the ryots go into the water waist deep and by threshing the surface of the water with the stalks, assisting the loosening of the bark with the fingers, the fiber is separated from the wood.

In justice of India it may be pointed out that samples of American and Italian hemp, so labeled, did not make a better showing.

From the results cited, not all jute would seem to have been treated in the unsanitary manner described by the *Americana*, because a few samples were clean in appearance and likewise sterile. The sterile brands, as before stated, sell at a premium, the price being almost twice that of the common grade. On the other hand, it has been found to cost less per joint of pipe because it is smoother, stronger and goes further. Jute packing can of course be sterilized by steam.

Using sterile jute, however, does not necessarily dispose of aftergrowths of coli-aerogenes in new mains. Opportunities for contamination are plentiful in this environment. The first rush of water carries the dust of the pipe into the crack containing the jute, and the trouble may be thus started. It is probable that the practice of dumping copious quantities of chloride of lime or perhaps permanganate of potash at the joint is the most effective means of preventing this initial contamination. In any event, the jute yarn is likely to act as a nuisance.

From these observations we may conclude that

1. Jute is a source of contamination in new mains.
2. Sanitary and unsanitary lots are on the market.
3. Chlorination of a main is an unsatisfactory method of sterilizing jute packing.
4. Jute should be shown to be free from the coli-aerogenes group before being used for water pipe packing.

REFERENCES

1. Brush, W. W. *J. Am. W. W. Assn.*, 17, 1: 79–86 (Jan.), 1927.
2. Absher, C. W. *J. Am. W. W. Assn.*, 15, 1: 52–59 (Jan.), 1926.
3. Kehr, R. W. *Proc. Eighth Ann. W. W. School*, Univ. Kansas, 1930, pp. 86–89.
4. Olson, W. M., and Wright, H. L. *J. Am. W. W. Assn.*, 20, 2: 229–233 (Aug.), 1928.
5. Sullivan, E. C. *Proc. Eleventh Texas W. W. School*, 1929, p. 106.
6. Gerstein, H. H. *Eng. News-Rec.*, 101, 11: 407, 1928.
7. Houston, Sir Alex. *Twelfth Rep. Res. Met. Water Board.*
8. Greer, F. E., and Kells, L. C. *W. W. & Sewerage*, 26, 9 (Sept.), 1929.
9. Spaulding, C. H. *J. Am. W. W. Assn.*, 21, 8: 1093 (Aug.), 1929.
10. Mellen, A. F. Not published.
11. Mallman, W. L. *J. Am. W. W. Assn.*, 21, 7: 944 (July), 1929.
12. Illinois State Dept. of Health, Eng. Div. Private communication.
13. Report of the Committee on Water Supply (A. P. H. A.). *A. J. P. H.*, 20, 5: 485 (May), 1930.
14. Bayliss, J. W. *W. W. & Sewerage*, 77, 10: 335–338 (Oct.), 1930.

Unemployment Relief—With the approach of winter the matter of providing gainful work for the nation's unemployed becomes more and more impressing. Municipalities and state governments are striving to provide funds to carry on constructive programs that will provide necessary municipal facilities and relieve unemployment. With municipal credit capable of extending construction costs over a period of years, there is every reason that it should be employed to alleviate the present situation.

New York City started work on a

$300,000,000 project to dispose of its sewage properly. Los Angeles voted $200,000,000 for an additional water supply from the Colorado River. Smaller cities have felt the influence of the taxpayers' leagues, bond markets, etc.; yet there is a vast amount of urgent work to protect the public health that should be done. The adequate disposal of sewage is a problem confronting thousands of American cities. The need for more extensive water supply and treatment plants was felt by hundreds of communities during the recent drought. The need of mosquito control in and about hundreds of communities in the South and along our seacoast is apparent if malaria fever is to be eliminated and workmen allowed to work undisturbed by hordes of mosquitoes. The need for adequate human waste disposal in unsewered areas is present in thousands of American towns. Clean Up Programs, that is, removal of unsightly tin cans, debris from vacant lots, clean up of city trash dumps or building of satisfactory reduction plants, the rat proofing of our water front structures, the provision of adequate play areas for the children, the creation of parks and picnic places; the demolition of structures condemned for human habitation, and the removal of the so-called slum area from our American cities—all these directly or indirectly affect public health.

Health departments should be actively interested in unemployment relief, and now is the time to get the sanitation projects under way. Labor is cheap, material is cheap, and the unemployed need work. Clean up the sewage disposal plant, put it in operating order or build a new one. Develop that additional water supply and new purification plant. Fix up the sanitation about the city limits. Get rid of malaria and dengue fevers, and do the drainage or cleaning up work to prevent mosquito breeding. Health departments shall lead the way. Public health can best be protected by having work on health protecting projects carried on.

Your A. P. H. A. Committee on Economic Aspects of Public Health Engineering Projects urges health officers to present forcibly the benefits to their communities of such engineering projects that will combine public health protection and unemployment relief.

E. L. FILBY, *Chairman*
A. C. DECKER
H. W. VAN HOVENBERG
H. P. EDDY
W. J. ORCHARD
W. L. STEVENSON

FOOD AND NUTRITION

Vitamin Content of Turnip Greens, Collards, Cantaloupes and Peaches—The methods used for determining the vitamin A, B, and C content of turnip greens, collards, cantaloupes and peaches were based on the Sherman technic. Studies were made on the turnip greens raw, boiled and canned. One oz. of raw turnip greens contained 1,418 units of vitamin A, approximately 14 of vitamin B and 95 of vitamin C. Greens boiled 45 minutes contained an equal amount of vitamin A but only 14 units per oz. of vitamin C. Greens boiled 2 hours contained 6 units per oz. of vitamin C. Canned greens which had been blanched in boiling water contained 7 units per oz. of vitamin C, while the steam blanched canned product contained 14 per oz.

Raw collards were found to contain 1,418 units of vitamin A per oz., about 28 of vitamin B, 28 of vitamin G, and 57 of vitamin C. Collards boiled 2 hours had lost no appreciable amounts of their vitamin A, B, or G content, but contained only 14 units of C per oz.

Fresh yellow cantaloupe was found to contain 95 units of vitamin A per oz., about 7 of vitamin B per oz., and 10 of vitamin C per oz.

Frozen Elberta peaches were found to contain approximately 14 units of vitamin A, and less than 0.5 of vitamin C per oz. The frozen Hiley variety of peach contained less than 14 units of vitamin A and less than 0.5 unit of vitamin C per oz.—Catherine L. Newton, Georgia Exper. Sta., *Bull. 167* (Aug.), 1931.

Vitamins in Canned Foods—XI. A Canned Food Diet—The experiments here reported were directed primarily to a study of the stability of the vitamins to the canning process. Tests for vitamins A, B and C were made. The canned foods were purchased at grocery stores and represent those available to everyone. The foods were not irradiated nor did the animals receive irradiation or direct rays of the sun.

Three pairs of young guinea pigs, weighing 320 to 430 gm., and one pair 3 weeks of age, and 3 pairs of young rats, 28 days of age, weighing 53 to 56 gm., were placed on a diet consisting entirely of canned foods sterilized by heat. When this report was made, the experiment with rats had been in progress for 15 months and that with guinea pigs for 12 months. During this time, the rats had reached the 5th generation and the guinea pigs the 3d.

Each generation was thriving as well as under any conditions. Reproduction was as prolific as could be expected, the size of the litters normal, in every way, and lactation was adequate. The rate of growth and weight at maturity was much higher than that reported as normal. The evidence indicates that canned foods may supply every dietary requirement, including vitamins B (B_1) and C, so often referred to as heat labile.—E. F. Kohman, W. H. Eddy, and Celia Zall Gurin, *J. Indust & Eng. Chem.*, 23: 1064 (Sept.), 1931.

Salmon Oil and Canned Salmon as Sources of Vitamins A and D—In this experiment, albino rats weighing 40 to 45 gm. were placed upon a vitamin A-deficient ration, as follows: alcohol extracted casein, salt mixture IV, agar, yeast, dextrinized corn starch and peanut oil. When distinct symptoms of ophthalmia occurred, the curative tests were begun. The salmon oils used were humpback, sockeye, chum, chinook, and

silver. Curves are given showing the different results obtained. It is apparent that the oils vary widely in their vitamin A potency and there was a striking correlation between depth of color and vitamin potency. The oils which showed a distinct reddish cast, as chinook and sockeye, contained more vitamin than chum which had practically no red color. Oils from the offal of salmon of the 5 species were found to be excellent sources of vitamin D. Three of such oils, humpback, sockeye, and chinook, were fully twice as potent as a medicinal cod liver oil, chum oil about 50 per cent more potent, and silver oil about equal to cod liver oil in vitamin D.—C. D. Tolle and E. M. Nelson, *J. Indust. & Eng. Chem.*, 23: 1066 (Sept.), 1931.

Vitamin A Content of Body Oils of Pacific Coast Salmon—These were made to secure quantitative data upon the relative vitamin A content of body oils of 5 common species of Pacific Coast salmon widely used as food. The common names of the 5 species are Chinook, Sockeye, Silver, Humpback, and Chum. The vitamin A content of the body oils was determined by the biological assay recommended by Sherman and Munsell and for comparison a medicinal cod liver oil was used as a conteol.

Young albino rats, 28 to 29 days old, weighing 35 to 55 gm., were placed on a vitamin A-free diet, otherwise adequate. When their bodily store of vitamin A had been depleted, they were replaced in individual cages and their diet was supplemented by the oils being tested.

Each animal received daily 93 mg. of chinook oil, 186 mg. of sockeye oil, 226 mg. of silver oil, 227 mg. of humpback oil, 221 mg. of chum oil, and 1 mg. of cod liver oil. All the salmon body oils tested were found to be decidedly inferior to a medicinal cod liver oil of high grade as a source of vitamin A. Chinook and sockeye oils were found to contain more vitamin A than the other three oils tested.

Two hundred and twenty-seven mg. of humback oil barely maintained life over the 8 weeks, and 221 mg. of chum oil failed in all cases but one to do so, the animals dying within from 5 to 7 weeks. It is noted that the vitamin A content of these oils falls in the same order as fat content of the flesh as determined by Shostrom, Clough, and Clark (*Ing. Eng. Chem.*, 16: 283, 1924), and, with the exception of the chinook, the reddest fish were also the richest in this vitamin.—R. W. Truesdail and L. C. Boynton, *J. Indust, Eng. Chem.*, 23: 1136 (Oct.), 1931.

Chemical Changes in the Fat of Frozen and Chilled Meat. I. Frozen Mutton and Lamb—In the experiments here reported, changes in the chemical composition, appearance and flavor of the fat of carcasses of lamb were observed during precooling, cold storage at — 5°, — 10°, and — 20° for periods up to 7 months and during hanging at room temperature subsequent to storage.

A temperature of — 5° failed to prevent the growth of molds and yeasts on the carcasses. No visible growth occurred at — 10° or — 20°, and the fat of the meat stored at the 3 temperatures did not seem to be attacked by microorganisms when held for 3 days at a mean temperature of 12° subsequent to storage.

The free acidity values recorded were of the order of 1.2 per cent (as oleic acid) for external fat and much less for kidney fat.

II. Chilled Beef—In the case of chilled beef, oxidation of the fat was not sufficient to render it unpalatable, provided undue exposure to strong light was avoided. Portions of the fat, particularly the front edge of the breast were, however, found to acquire, on

prolonged storage, a tainted flavor. Measures, such as the use of air circulation, or of a storage temperature of — 1.6° in place of 0°, which produced conditions less favorable to the growth of microörganisms were found to extend the storage life of the fat and hence of the meat.—C. H. Lea (*J. S. C. I.*, 1931, 50: 207–213 t, 215–220 t). Abstract *J. S. C. I.*, 50: 779 (Aug. 21), 1931.

Chemical Changes in the Fat of Frozen and Chilled Fat. III. Frozen Bacon—The experiments were undertaken to discover the cause of the deterioration in the fat during storage and to obtain information on the keeping qualities of the fat of (1) smoking, (2) variations in composition of the feed including the addition of cod liver oil in small quantities to the diet, and (3) immediate cooling of the pork at 5° C. (40° F.) after dressing instead of at ordinary temperature.

The free acidity values observed in the fat of tank-cured bacon during storage at — 10° for periods up to 152 days followed by hanging at 15° for 18 days gave no indication of attack by microorganisms on the fat, nor were any signs of tainted flavor observed. The superficial fat of freshly cured bacon was found to contain small quantities of active oxygen which rendered the fat very susceptible to further oxidation during storage.

When stored at a temperature of — 10° the exposed surface of the fat oxidized rapidly, but without developing any appreciable yellow color in 152 days. At 15° the bacon was found to become yellow on the surface and, after cold storage, sometimes in the interior of the fat. On cooking the oxidized portions of the fat had a rancid flavor. Smoking considerably improved the resistance of the bacon to attack by microorganisms, the surface of the bacon being practically free from mold, while the controls were badly contaminated with white and green molds and yeasts.

Rapid cooling at 5° prior to curing seemed to have no appreciable effect on the fat. The addition of cod liver oil to the diet, even in small quantities, appeared to have a harmful effect on the keeping qualities of the bacon, although no effect on the iodine value of the fat. —Colin H. Lea, *J. S. C. I.*, 50: 343 t (Sept. 11), 1931.

INDUSTRIAL HYGIENE

Industrial Hygiene in New York State—The New York State compensation law schedules 27 occupational diseases and poisons of which only 18 were mentioned in applications in 1930. While it is possible to prove that the compensation act has resulted in a positive economy to the manufacturer, proof is not at hand to show that prevention of occupational diseases has been of monetary benefit to him.

The Division of Industrial Hygiene had its origin in the recommendations of the New York State Factory Investigation Commission of 1912. Thus the primary object of the division today is the prevention of industrial accidents and occupational diseases. The background of the efforts may be stated in a few words:

The population of New York State, on April 1, 1930, was 12,588,066, of which number about 3,000,000 came within the operation of the workmen's compensation act. New York, like other states, has a small number of large plants and a large number of small plants; e.g., there are hardly 400 plants in the whole state which have 500 employees or more, although there are 60,000 establishments whose output is $5,000 or more per annum. About 92 per cent of the establishments have 50 employees or less. Also, the state has no less than 200 industrial groups, each one with with a great variety of occupations. During 1930, 109,848 compensation cases were closed (at a cost amounting to $35,243,703), of which 423 were due to occupational disease lasting for a week or more. Less than $1,000,000 a year is provided for prevention, of which only one-tenth is spent on industrial hygiene. Even in the large establishments, which afford medical departments, there is very little evidence of activity by plant physicians in the prevention of occupational disease.

The division's secondary functions are to assist in the operation of the workmen's compensation act, to provide information for the Industrial Board and other divisions of the Department of Labor as well as the medical profession and the public. In the matter of prevention the chief function has to do with accidents since, roughly, only 0.5 per cent of all present compensation cases are occupational diseases.

The staff of the division comprises 24 persons, including medical inspectors, chemists, safety inspectors, engineers, plan examiners, investigators, safety lecturers and demonstrators, and clerical help.

The medical inspectors visit industrial plants to determine the cause of occupational diseases and to ascertain whether conditions are inimical to health as well as to determine specific hazards such as lead, carbon monoxide, or chromium. The chemists secure samples of materials alleged to be dangerous and analyze them, and likewise make determinations of atmospheric conditions. The engineers examine plans and ventilating systems in accordance with the industrial codes. During 1930, 683 ventilation plans were submitted for approval, of which 605 were approved and 78 disapproved. Also 6 studies or monographs on accident causes and prevention were made in addition to lectures, exhibits, demonstrations and special statistical studies.

The reporting of occupational diseases by physicians on the standard

official certificate (Form 313) is practically inoperative for several reasons such as the inclusion of only a few of the more obvious diseases on the schedule, the failure of many physicians to recognize an occupational disease, and the lack of remuneration for reporting the same as well as a penalty for failure to do so. Therefore, information regarding occupational diseases is difficult to get and the chief sources come from the compensation act and certain requests and hearings.

During 1930, 770 cases of occupational diseases were reported, the chief being: lead 350, benzol 36, chromium 29, carbon monoxide 21, dermatitis about 150. A considerable reduction of lead cases is expected as the result of the action of the principal lead battery manufacturers which have followed the recommendations made by the division; thus, whereas 254 lead cases were reported in 1930, there were only 15 during the first 6 months of 1931.

The medical staff has prepared several monographs, e.g., on lead, carbon monoxide, and chrome poisoning, and more recently a series of " industrial hygiene leaflets " to inform physicians, employers and workers about occupational poisons and diseases. It has been found a most difficult thing to popularize knowledge of occupational diseases where they occur only here and there in the vast extent of the state.

In the future, closer coöperation is to be sought with the state and municipal health authorities whose help is needed and whom we need to help. Likewise, the extension of the division is to be hoped for and expected with far more stress on prevention as well as the inclusion of all occupational diseases in the compensation act. It is highly necessary that a clinic be set up for the purpose of diagnosis, prevention, and determination of sensitivity. The extension of publicity is also desirable.—J. D. Hackett, Director, Div. Indust. Hyg., New York State Dept. of Labor. Abstract of paper presented before the Industrial Hygiene Section of the A. P. H. A. at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

E. R. H.

The Eastern Interstate Conference on Labor Legislation, June 18–19, 1931—The conference, held in Harrisburg, was called by Governor Pinchot and was composed of representatives of the governors of a considerable area of eastern states for setting standards for labor legislation to meet the needs of an industrial area. The conference was made up of representatives from the states of Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, and West Virginia; and the U. S. Department of Labor.

The discussion was limited to the consideration of standards for workmen's compensation, for employment of women and children, industrial health, and labor statistics, and recommendations as to minimum standards. This is considered the beginning of a movement which recognizes the needs and problems of industry irrespective of state boundary lines, and a continuing body was appointed to meet again for further study of the questions involved.

Recommendations of the section on industrial health referred to the following features: ventilation, temperature, humidity, lighting, air space; drinking water; toilet facilities, wash and dressing rooms; lunchrooms; seating facilities; cleaning and physical upkeep of places of employment; first aid; general health consideration (referring especially to building construction and equipment); and occupational diseases.

Simply, " adequate standards " were recommended for ventilation, temperature, humidity, lighting, etc., and it was prescribed that specific minimums be not adopted in the law on these points but

that power be lodged in the administrative authorities of each state to establish such standards. The highest standards now found in existence in labor laws are to be considered as well as consultation with the U. S. Public Health Service, the American Public Health Association, the American Standards Association, the National Safety Council, and other similar organizations.

It was also recommended that reports of all occupational diseases shall be rendered by all physicians diagnosing and (or) treating such cases, and by all employers having knowledge of cases of such diseases among their employees. " Protective devices and measures necessary for the prevention of any or all occupational diseases shall be required."

Other sections dealt with recommendations on employment offices and on the matter of statistics. A fairly large number of prominent persons were assembled to compile the recommendations of the various sections.—Pennsylvania Dept. of Labor & Industry, *Labor & Indust.*, 18, 7: 3–17 (July), 1931.

E. R. H.

Committee Reports—Four of the various committees of the Section on Industrial Hygiene rendered reports at the Montreal Meeting as follows:

The Committee on Standard Practices for the Compensation of Occupational Diseases, of which Dr. Lanza is Chairman and for which Dr. Kessler read the report, devoted its time to the subject of Silicosis, urged on by the situation in New Jersey, the recent conference in South Africa, and the experience of Ontario; and considered the matters of administration, standards of diagnosis, time of exposure, and compensation. By order of the Section, this committee was instructed to combine with the Committee on Pneumoconiosis (below) and to render a joint report which was done at a later session of the same meeting.

The Committee on Pneumoconiosis, of which Dr. Sayers is Chairman, rendered a report to further uniformity of terminology and definitions, stages and diagnosis of silicosis, and was requested to render a combined report with the above named committee as indicated, Dr. Sayers to be Chairman of the Joint Committee.

The Committee on Industrial Fatigue, of which Dr. Eugene L. Fisk, deceased, was Chairman, presented a report by Dr. Frederick B. Flinn, Acting Chairman, which referred to the maintenance of the bibliography on this subject and several features in the study of fatigue and the committee was instructed to proceed under Dr. Flinn.

The Committee on Lead Poisoning, of which Dr. Hayhurst is Chairman, exhibited a complete bibliography for the year 1929, and distributed mimeographed copies containing brief abstracts of part of this, the work being the accomplishment pretty largely of Clareiss T. Rayne, Secretary of the Association's Committee on Research and Standards; also, a statistical statement for the year 1929 prepared by Dr. Frederick L. Hoffman, a member of the committee. Furthermore, Dr. Joseph C. Aub, a member of the committee, presented a paper accompanied with X-ray illustrations upon " The Significance of Bone Trabeculae in the Treatment of Lead Poisoning."

The four reports of the above named committees will be printed in the Association's *Year Book,* except the extensive bibliographies in connection with some of them, which may be obtained either in part or in whole from the Association's headquarters. E. R. H.

Silicosis in the Abrasive Powder Industry—Recently, in New Jersey, over 100 cases of silicosis are alleged to have occurred in the abrasive powder industry, involving 4 companies which pumped up sand by hydraulic pressure

to a plant where it was washed, steam dried, screened into various sizes and then pulverized in closed tube mills. The free silica content of the completed product was approximately 99.24 per cent, and of the order of 1–5 μ in size. The silica powder was packed by mechanical means into large cotton bags. Dust arose at the tube mill and in packing, although apparently efficient exhaust ventilation was present; also, in handling and carting the bags. The men wore ordinary Wilson type respirators, positive pressure air-line masks having been found impractical or inefficient. Another place of hazard was bag cleaning and repairing, usually done by women. Young colored adults were employed in the main mill room.

Silica powder is used in about 20 industries, especially the glass, pottery and abrasive cleaner industries.

While most of the claimants were employed at or near the packing operation, others were in the wet processes, and several women were in the bag cleaning work. Six persons have died and have been autopsied by Dr. Martland of Newark. Many others have been reported to have died but the results of the autopsies in these cases are not known. Of 40 X-rays of cases reviewed by the author only 4 could be called ante-primary, although some others showed varying degrees of fibrosis without characteristic mottling.

The most outstanding feature of these cases has been the allegedly short exposure period—apparently as brief as 4 months to 1½ years. Others have had an exposure as long as 6 years. Many of the cases have been seen by competent observers and studied by roentgen rays and reported as first or second stage silicosis.

In comparable experience, Irvine, of South Africa, has observed only 1 case which occurred in less than 6 months' exposure—this in a miner who was confined in a very small work space; Hayhurst (in Ohio) found only 1 case with 1 year or less of exposure in 919 sandstone quarry men; D. G. Robertson, of Australia, found the average period of employment in mine workers with detectable silicosis to be 21 years in surface work and 26 years in underground work; Adelaide Smith, in rock drillers and blasters in New York City, found the shortest exposure to be 3 years; Muller reported 3 years in sandblasting; Kraestle 10 years in the porcelain industry; Bohme 10 to 15 years in stoneborers. Mavrogordato reports 10 to 11 years as the mean duration of exposure before the disease is clinically recognized, while Sutherland and Bryson report 20 years in the sandstone industry before the disease is recognized. The Ontario Silicosis Scheme places a minimum of 3 years' exposure in the stone industry and 5 years in the mining industry before compensation is paid. This has been done to distinguish between fibrosis and other disease or dust exposures than silica, for the law compensates silicosis only.

The New Jersey situation therefore appears unique in the matter of the short length of exposure " or that fibrosis due to other causes is being mistakenly regarded as silicosis."

While the plants concerned have taken precautionary steps, further engineering improvements are desirable, as well as shorter hours with alternation of exposure periods, medical examinations and the addition of some chemical agent to the silica powder which will take up water from the atmosphere and keep it moist without impairing its properties.

(In the considerable discussion which followed the presentation of this paper it was brought out that preëmployment examination of these workers had not been made so that the possibility of longer periods of exposure to silica was present, while both the author of the paper and the discussants felt that much more intensive work should be done on

the situation before deriving final conclusions.)—Henry H. Kessler, M.D., Newark, N. J. Abstract of a paper presented before the Industrial Hygiene Section of the A. P. H. A. at the Sixtieth Annual Meeting at Montreal, Canada, September 15, 1931.

E. R. H.

Asbestosis Bodies in the Sputum: a Study of Specimens from Fifty Workers in an Asbestos Mill—Author's summary:

The inhalation of asbestos dust in high concentrations leads to the appearance of asbestosis bodies in the sputum in a large percentage of the workers exposed thereto. They were present in 48 out of 50 workers examined.

Asbestosis bodies were as easily demonstrated by direct thick films as by the antiformin method.

The sputum was always mucoid in character when there were no bronchial complications. It may resemble egg albumen. In none of the sputums were tubercle bacilli demonstrated.

Study of the intracellular asbestosis bodies in these cases suggests that they are formed by the deposition on the asbestos fiber of an iron-containing substance elaborated by the cell.—F. W. Simson and A. Sutherland Strachan, *J. Path. & Bact.*, 34, 1931, 4 pp.

E. R. H.

CHILD HYGIENE

HEALTH OF THE ADOLESCENT

NO one who is at all familiar with problems relating to adolescence will doubt that the health equilibrium during this period, from both the psychological and physical standpoints, is rather unstable. Growth and development during adolescence are very perplexing. The significance of this period is probably least understood of all the periods of growth, and demands concentration on special studies of many kinds.

During adolescence we cannot apply the same standards of growth and development as are used during earlier periods. It has been clearly pointed out by many investigators that in this period there is lag in both height and weight, and that this is followed by a distinct spurt in growth after the 15th year. The acceleration of growth as a factor in weight begins somewhat earlier in girls than in boys. For the most part the tables of height and weight which have been used as criterions for malnutrition should be laid aside and judgment should be based upon careful physical and mental examinations of the child, together with a survey of his health habits. There is a great need for a better construction of standards of growth and development in the adolescent child. Growth implies not only increase in height and weight, but also increase in the integration process of the organism on its way toward maturity. Within each individual there seems to be an inherent power of growth toward a goal or pattern, and this applies to the individual organs and the body as a whole.

A wider knowledge of the social and emotional experiences, in relation to growth, through which the child passes in adolescence is extremely important. It is a period of constant, and sometimes rapid, changes of the individual parts of the body, and of one or another part in relation to the whole. While a considerable amount of literature has appeared in recent years dealing with various phases of adolescence, we still are in doubt about certain of the processes of growth, and especially concerning the exact action of the endocrines. There is no question that the endocrine glands exert powerful influence upon the adolescent development of both sexes. Ample evidence is at hand, showing that development of the sex glands is closely related to the functioning of the thyroid and pituitary bodies. At this period there is intimate relation between the growth of the long bones and development of fundamental muscles. Both of these give to adolescent development its chief characteristics of increase in weight, height, and body growth. It is well known also that the muscles are intimately related to every other system in the body.

During the second decade there is a greater demand for activity on the part of the large skeletal muscles and this is manifested by the interest of the adolescent in outdoor sports requiring considerable endurance. Disproportion in growth between muscle and bones, or between two sets of muscles, may take place, resulting, as we know, in awkwardness, slovenly gait, poor posture, and asymmetrical development. This is

a period in which the growing youth needs particular attention from the standpoint of corrective exercises and skillful direction of athletic sports. The growing muscles demand oxygen and fuel, and this leads to distinct changes in the circulatory and respiratory systems. There is evidence to show that before the accelerated growth of adolescence the heart is relatively small in proportion to the large blood vessels. During adolescence the heart develops rapidly in size and in strength of beat, and its capacity enlarges. The vital capacity of the body is also increased considerably. It is a serious question whether the skeletal muscles do not grow at a greater rate than the heart during this period, thus placing an extra burden upon the latter, especially during strenuous exercises.

We know, from clinical evidence, that the heart of the adolescent boy or girl is prone to be affected by the acute communicable diseases. It is very important, therefore, to examine carefully every adolescent boy and girl returning to school after one of the infectious diseases. A number of unpleasant incidents have been reported in which the boy or girl has suffered from acute dilation of the heart when playing strenuous games, such as basketball, after having had influenza or one of the other acute infectious diseases. The question naturally arises whether the strain to which the heart is subjected during adolescence will manifest itself later in weakness and premature breakdown. On the other hand, the healthy, normal heart of adolescence makes very rapid adjustment, and compensates for the damage done in other respects.

One of the most difficult problems at present is the increase of tuberculosis among high school children. For several years there has been noted a distinct tendency for tuberculosis rates to rise among adolescent girls. This has been attributed to many factors, such as chronic fatigue, fads in dieting, and scanty clothing during the winter months. Studies are now being conducted in a number of places which reveal the origin during adolescence of the adult type of tuberculosis. This brings forcibly to us the importance of very careful examination, supplemented with X-rays, of high school students.

Studies concerning absenteeism in secondary schools have revealed sickness as a major cause of absence. Diseases of the upper respiratory tract and gastrointestinal diseases appear to be the most important ones among the high school population. The acute communicable diseases, other than common colds and influenza, do not seem to play a large part in absenteeism. It has been found that when the secondary school employs a capable nurse, who can check up on the absences and follow up cases to the home, the number of days of absence has been reduced considerably. This gives the nurse an excellent opportunity not only to conduct classes in personal hygiene in the school, but also to use the occasion of her home visits and her contacts with the teachers to enforce the lessons of hygiene and sanitation.

One of the most important disorders, occurring in the Great Lakes region and in the mountainous areas of the United States, is simple or adolescent goiter. Using the epoch-making work of Marine, Lenhart, and Kimball, we are in a position to prevent this type of goiter. The regular administration of small quantities of iodine, consistently carried out, especially to girls between 12 and 16 years of age, has decreased considerably the percentage of goiter. Medical examiners and nurses in the high schools should constantly be on the look-out for signs of this disorder. Many of the girls having it are hyper-active, very intelligent, and make high grades; they are usually thin and nervous, and have rapid heart action. Some of these cases

have been confused with tuberculosis, but the diagnosis may be made readily by means of thorough physical examinations, basal metabolism tests, and the use of the X-ray and tuberculin.

Provision should be made in the high schools so that girls having slight ailments and needing periods of rest may have the use of comfortable cots. The exercise of both boys and girls should be regulated carefully so as to adapt itself to the requirements of each individual child.

Problems of nutrition come to the front during this period. Bad habits of eating and poor selection of food begin to show results in lack of vitality and fatigability of the high school boy and girl. Ample provision should be made for a lunchroom where well balanced meals, including a liberal supply of milk, are served. Definite instructions should be given regarding values of the food elements and the composition of foods. Something should be taught as to the relative cost of different foods.

This brings us to the whole problem of health education in secondary schools. There are a number of subjects with which health may be correlated in the secondary schools, but it is important, in addition, that some one individual be made responsible for bringing about this coördination and keeping in close touch with all the activities of the school which bear upon the child. This need is being met in some places by a health coördinator or correlator.

PUBLIC HEALTH NURSING*

The Development of Nursing in China—Nursing as a profession has been known in China for comparatively few years. In this regard "New China" is slowly emerging from the isolation of ages. However, there are millions of Chinese who still believe in the presence and power of demons. Charlatans thrive in producing charms and amulets to combat the attacks of ills which afflict the human body which are supposed to be caused by the visitations of specters.

Chinese doctors of the old school are found everywhere. They use quaint drugs and wonderful prescriptions, and scientific training is not considered necessary for them. The same is true of the midwives; they have no special training, but what they know has been passed down from their mothers and grandmothers. They do untold harm as they do not know the rudiments of cleanliness or asepsis.

But Chinese women are now being trained as nurses and doctors due to the early activities of the Christian missionaries who realized the need of proper medical care for Chinese mothers. Twenty years ago the Nurses Association of China (N. A. C.) was formed; this gave impetus to the training of Chinese girls for nursing. In 1929 the N. A. C. sent 5 delegates, 3 of whom were Chinese, to the International Council of Nurses Quadrennial Congress held in Montreal, Canada. It was at this meeting that the N. A. C. became affiliated with the Council.

At the tenth biennial conference of the N. A. C. in 1930 the Minister of Health of the Chinese National Government in an address said that it was estimated that there was only 1 nurse in China to about 200,000 people. The President of the N. A. C. at the same meeting said, "Properly trained nurses who are able to give instruction and advice in health matters are a necessity. The education of nurses is a public responsibility."

Now the Government of China is taking great interest in the training, registration and protection of nurses. The General Secretary of the N. A. C. has been appointed Director of Nursing Service of the Ministry of Health.—J. G. Cormack, Another Aspect; The History of Chinese Nursing, *Nurs. Times*, 1375: 971–972 (Sept. 5), 1931.

Public Health Nursing in Rural Industrial Communities—In a rural community, assembled to promote some industry, the problems of hygienic and wholesome living and the problems of sanitation are accentuated. It is fair to consider the public health work of a large concern like the Consolidation Coal Company of Pennsylvania, West Virginia, and Kentucky as an example of what should be done in all rural industrial communities to make the "bodies and minds" of their employees to "function normally."

Ten thousand employees of the Consolidation Coal Company and their families are scattered in mining communities in the 3 states named above. The territory is divided into 6 divisions, the minimum distance between any 2 being 60 miles, and the maximum 300 or more miles. Because of these scattered areas it has been necessary to establish 14 medical units with 23 phy-

* Please send printed matter or other material relating to public health nursing to Eva F. MacDougall, 6 State House Annex, Indianapolis, Ind.

sicians, 12 staff nurses and 1 supervisor. In Elkhorn Division in southern Kentucky there is a fully equipped 50-bed hospital which has been approved as a first class hospital by the American College of Surgeons.

The few cases of communicable disease speak well for the immunization program. In all the communities the applicant is given a physical examination and if accepted he and his family receive typhoid and smallpox vaccination immediately.

The charge for medical service to the employees and their families is $1.00 for a single man and $1.50 for a married man, and this amount is deducted in each case from the pay roll. An extra charge is made by the physician for obstetrical and venereal disease cases.

A school health program similar to that being installed in the schools of Pennsylvania was instituted last year.

The 12 public health nurses, dressed in dark blue silk uniforms and carrying black leather bags, fitted for their varied activities, inspect school children, make home visits, conduct mothers' classes, and boys' and girls' clubs, distribute health literature, and conduct infant welfare clinics. A full-time dentist is employed for some of the schools.

A monthly sanitary inspection of camps, and milk and water supplies, is made by the sanitary squad, which includes the personnel manager of each division, the superintendent, the doctor, nurse, and a representative of the Building and Civic Improvement Department. Recommendations made by this squad are given serious consideration.

The company issues a monthly newspaper which is extensively used as a health advertising medium.

Since the time of the inauguration of this program in 1927, through a continuous process of education, the communities have learned to appreciate that when a work of this kind must be limited for economic reasons, much more can be accomplished through a preventive than through a curative program. —Hilda S. Nelson, R.N., Public Health Nursing in Rural Industrial Communities, *Trained Nurse & Hosp. Rev.*, Aug., 1931, p. 208 V. A. J.

A Western Experiment in Nursing Education—The education of the nurse has had to be broadened in recent years to keep pace with the advances in the field of medicine. More comprehensive courses in the laboratory sciences have called for increased laboratory equipment and facilities, which entail a greater outlay of funds than most hospitals have available for this purpose, unless they increase their revenue by raising the cost to the patient or rely on philanthropic individuals. Nurses render service to the public, and it seems only logical that the public, which pays for the education of doctors, lawyers, and practically every other professional group, should be given the chance to participate in the education of nurses.

Nursing education leaders have worked hard to interest educational institutions in affiliating with nursing schools to give pupil nurses varying amounts of instruction not only in the basic sciences but also in basic and technical and professional subjects included in a 5-year course leading to a B.S. degree.

When the Board of Education of the City of Los Angeles, Calif., opened its Junior College in 1929 the California League of Nursing Education, Southern Branch, appointed a committee to arrange an affiliation between nursing schools and the college. A pre-nursing course of study covering 1 full year at the Junior College was planned for students wishing to enter schools of nursing. During the year 1930–1931 the California Lutheran Nursing School, the Methodist Hospital Nursing School, and the Bishop Johnson College of Nursing participated in this joint arrangement.

Some advantages of the arrangement:

1. The laboratory equipment is much more complete than the ordinary nursing school could afford.
2. Subjects are taught by specialists in each particular line with years of teaching experience behind them.
3. The student nurses have contact with other college students.
4. It helps eliminate the undesirable student, as the Junior College drops the student at the end of 10 weeks if she fails to pass in 10 units.

The greatest possibilities for developing nursing education along the lines demanded by advancing medical science and practice seem to lie in schools that are independent of, but affiliated with, hospitals and colleges; that are controlled by the League of Nursing Education, and supported by State funds.—Lena E. Moede, R.N., The Los Angeles Experiment in Nursing Education, *Western Hosp. Rev.*, Oct., 1931, p. 16.

EDUCATION AND PUBLICITY*

Ill-Advised Advisers—A picture, "Night Nurse," recently released emphasizes a danger which crops up in unexpected places. For the argument against this picture see "Powerful Defense by the American Hospital Association" (*American Journal of Nursing*, Oct., 1931) which states that

> The picture is a distinct reflection upon the hospital operation and its portrayal of the character of the nurse reaches a point where it approaches the scurrilous.

A letter from the Motion Picture Producers and Distributors of America states that

> . . . the studio affected secured the services of an eminent physician in California and followed his advice regarding the details of hospital technic as well as the portrayal of the nurses and physicians as shown in the picture.

Not long ago a commercial food association issued a pamphlet of doubtful utility to the schools to which it is being supplied. "The pamphlet was approved by a leading educator," was the reply to a letter in which we questioned its use in schools.

Because of quirks in the judgment of individuals and the all too common lack of analytical minds almost any proposal in health education may find its endorser among leaders in professional groups.

It is no light responsibility to advise commercial interests or health agencies as to the validity of their data and the form of presentation. It is easy to be too up to date in sponsoring ideas not finally accepted by science. It is equally possible to cling too long to discarded notions. Personal prejudices and limitations of our own experience need to be checked.

Advertisers may guard against mistakes by consulting widely before choosing advisers. And professional advisers may well seek consultation with others in the profession.

Instruct Your Representatives—Suggestions for the program and other activities of the Public Health Education Section are invited by its officers in preparation for the January meeting of the Section Council.

Awards But No Contest—All varieties of educational publicity material will be considered by the Awards Committee of the Social Work Publicity Council. Whatever the form, whatever the source, the committee will

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

evaluate it on whatever consideration it seems to call for recognition. All material sent to this department, as well as what goes to the S. W. P. C., will be in line for awards.

Borrowed Gems—Good ideas and good writing, and pictures, too, are being passed on to other audiences.

The noted borrowings in bulletins or house organs have included quotations from daily papers, *Hygeia*, city and state bulletins, general magazines, and press releases of radio talks.

Ohio, Massachusetts, New York State, Michigan, Lincoln, Detroit, Texas, Massachusetts Mental Hygiene, Oakland Health Center, and Wisconsin Anti-Tuberculosis bulletins were among those quoting from the wealth of good material which might well be passed on to additional audiences.

They Have So Much to Share—Last winter about 50 book people met a number of times fortnightly in New York City. They are meeting again at intervals this winter. All they have to discuss is the planning of the paper, typography, printing and binding of books.

Is it possible that small groups of those concerned with public health education could get together to discuss how to get people to read, to listen, to act?—and how to that end to make use of printed matter, radio, motion pictures, and the whole range of mediums available for awakening interest and spreading information?

Food Store Window Displays—Bellevue-Yorkville and East Harlem Health Centers, New York, both had grocery window display contests this fall. Awards were made on the basis of the food values of the stock displayed, as well as for its selling effectiveness.

In addition to the details of the contest plan as worked out by the two health centers two points may well be considered when such contests are put on in other cities:

1. To provide a colorful placard or poster (amateur-made or otherwise) to tie up the window with the current food selection campaign—and to emphasize that such selected foods are sold in that store.
2. To give information about—or better—to provide copies of window display suggestions to be secured free from display material manufacturers.

A brief memorandum of such material now available will be supplied by the editor of this department. Enclose an addressed and stamped envelope.

Told To The Public—What health departments in various cities and states think the public ought to know is revealed by the topics of press releases sent out. Among news releases received by the editor of this department this fall are the following titles:

Connecticut: "Midwife Institute"; "Does Your Child Grow?" "A Protective Measure"; "Poliomyelitis With Respiratory Paralysis"; "Sleep and Growth"; "Oyster Season Is Now On"; "Nutrition To Be Discussed"; also news about Department activities.

Detroit: "Prophylaxis of Ringworm for the Feet in School Children"; "Tuberculosis: An Important Cause of Death Among Children"; "The After Care of Infantile Paralysis"; "Toxoid as a Prophylaxis Against Diphtheria"; "Poliomyelitis"; "Diphtheria On The Increase—Why?"

Iowa: "Sewage Disposal"; "Wash Your Hands"; "Teachers Should Report Cases of Disease"; "Diphtheria in the Offing"; "Whooping Cough"; "A Fifteen-Dollar Blooded Calf"; "Heart Disease"; "Too Much Small Pox."

Maryland: "Oysters Are On The Menu Again"; "You Can Protect Them Against It" (diphtheria); "Defines Dental Decay"; "Seasonal Sickness"; "Health Insurance for the Six Year Molars"; "Don't Let These Things Go On"; "Start the Day With a Good Breakfast"; "Extension of Full-Time Health Service."

New York State: "Does It Make Any Difference What We Eat?" "The Closed Season For Garages"; "The Control of Communicable Diseases Among Children"; "Does

Your Child Have Good Teeth?—Regular Dental Attention Helps"; "Cancer"; "Swimming Pools and Their Effect on Health."

Oregon: "Health Problems of Swimming Pools"; "Food Poisoning"; "Rheumatism"; "Eating Sprees"; "The Control of Communicable Diseases Among Children"; "Prevent Colds"; "Report Diseases"; "Control Infantile Paralysis by Early Diagnosis and Prompt Treatment."

U. S. Public Health Service: "International Sanitary Relations of the U. S. P. H. S."; "Rat-proofing of Ships"; "Preparing the Child For School"; "Cancer"; "The Prevention of Goiter"; "Sport For Health's Sake"; "Work of Employees' Mutual Benefit Association"; "The Fight Against Diphtheria"; "Hygienic Adjustment in Middle Age."

National Society for the Prevention of Blindness and New York City releases were not titled.

Of course many other city and state departments issued news material, and voluntary health organizations, of which none were received.

Write your own "moral," if any, to the above.

A New Medium—Gummed address labels in red, black and white (cancer campaign symbol in white on black) are offered to contributors of $1.00 or more to New York City Cancer Committee, 34 East 75th St., New York. The letter and reply slip carry the propaganda.

Radio in Racine—A series of 15 radio health episodes given by the Health Department, Racine, Wis., measure up well with the general run of commercial radio dramatized "sales talks." The conversation is easy, natural, entertaining and the propaganda worked in an ingenious, interest sustaining manner.

The subject is the safe and refreshing vacation of the Martin family. The mother is a sensible, cautious person, the father a hard working business man, the 18-year old George and the 15-year old Mary, modern young people with the gift of quick comebacks. The terse conversation moves along with the good-natured chaffing heard in every family where real regard is covered with a veneer of sharp give and take.

First Mrs. Martin consults the Health Department about vacation precautions. Her plan for a long hike is changed to the use of the car with supplementary hikes, a warning against unusual unaccustomed exertions. We hear the family pack, treat sunburns, drive leisurely, pick camp, search for a pure water supply, all on advice previously obtained from their health department. Hear them have their little jokes while they guard their health:

Mary: I thought a scout was always observant.

George: Oh, did you? Well, they are. And they don't need signs and tags to tell 'em when a well is no good.

Mary: I'm so glad you're not going to disappoint me.

George: Aw, go climb a tree!

Mrs. M.: Well, anyway, George, if you didn't see those signs, why didn't you use the well water?

George: In the first place, the cover was made of boards, and they were dirty and rotten, and water could leak through them right back into the well. In the second place, the waste water wasn't drained away from the well. And the pump had to be primed—

Mrs. M.: Not when Mary tried it.

Mr. M.: Possibly that was because George and I had just primed it.

George: And—there was a barnyard *up* the hill from the pump. Did you see that, Mary dollink?

Mary: Eh—why, of course.

George: Yes, you did—not!

Later they pick a clean restaurant through specific observations:

Mary: Well, here's your barbecue. Let's eat.

George: Does it pass the board of censors, Mom?

Father: It's got screens.

Mother: And the food is in glass cases.

Mary: So are the dishes.

George: And the girl back of the counter's got a clean apron.

Mary: What color hair has she got?

George: Brown. Sa—ay, what's it to you?

Mary: I just thought you'd surely notice that.

They visit relatives in a small town with a health hazard, typhoid fever. Arriving home well and refreshed, they find neighbors, who gaily omitted the precautions taken on their trip, ill with typhoid.

The series was interrupted once with an interesting episode designed to introduce the members of the Health Department giving the broadcast, including Dr. W. W. Bauer, who wrote the series, and Mrs. Bauer. An opportunity is made to describe the fine new quarters of the Health Department.—HELEN CAMPBELL.

NEWSPAPERS

The annual directory of newspaper feature syndicates appeared in *Editor and Publisher*, Times Bldg., New York. Aug. 29, 1931. *10 cents*. Twelve health columns are edited by Drs. Copeland, Evans, Brady, Sophia Brunson, Clendening, Fishbein, McCoy, Galdston, Schumann and Bundesen. Editorial comment is offered by 12 syndicates. Some of the writers might use carefully selected material from health agencies. Crossword puzzles are supplied by 14 syndicates.

EDUCATIONAL MATERIAL

"An Important Message from the Health Commissioner" appears on the address side of a folded card, double postal card size. The inside is a typewritten letter from the Commissioner of Health, New York State, addressed to "Dear Madam," urging increased milk consumption. Though reduced to the size of the double inside page the message is quite readable. It is distributed with the bills of milk companies.

Your Baby Needs Protection Now. Division of Health, Cleveland. 4 p. folder. Simplest possible statement about diphtheria and smallpox, with clinic information. The dark paper is a bit gloomy. *Free*.

Food for Children. Dept. of Agriculture, Washington. 20 p. Displaces Food for Young Children, a former Farmers' Bulletin. *Free*—while free edition lasts.

Four-fifths of the supply of Farmers' Bulletins is placed by law at the disposal of members of Congress for free distribution by them. It is therefore suggested that when Farmers' Bulletins are desired in quantity, request for them be made of a member of Congress.

The Health Guards. Canadian Dental Hygiene Council, Medical Arts Bldg., Toronto. 32 p. booklet; simply written; addressed to children and mothers.

Let's Grow—Be Healthy and Happy. Tuberculosis and Health Society, 51 Warren Ave., West, Detroit. *10 cents*. 10 to-be-colored pictures of animals and birds illustrating 10 health rules, with jingles. One page shows penguins, and

> Body straight and head erect
> Is the posture to select.

Health Education Materials. Dairymen's League, 11 W. 42d St., New York. Revised catalogue.

Healthy Teeth. John Hancock Mutual Life Insurance Co., Boston. 11 pages. "Ought to do much towards giving men and women a basis for accepting or rejecting the truths or half truths with which they are bombarded." *Free*.

A group of booklets from Metropolitan Life Insurance Co., 1 Madison Ave., New York:

Good Habits For Children
Good Teeth
The Conquest of Typhoid Fever
First Aid

Above are revised editions, with new covers, and without distracting ornament on text pages. *Free*.

TITLES AND PHRASES

"From Stable to Table"—*Health*, New Haven.

"The Forty-Five Million" (children in U. S.)—*Mouth Hygiene Quarterly*.

"What Two Cents Accomplished." New York City Dept. of Health. Meaning the annual per capita expense for the 3-year diphtheria campaign closed last month.

"What One Can See In Figures"; "One or One Hundred?" "When a Thousand is Better Than Two Thousand"; "A Mountain Which Will Be Eaten Up"; "Things Which Make Things": some chapter headings from New Russia's Primer.

NEW

Birmingham's Health, Jefferson County Board of Health, Birmingham, Ala. Attractive printed front and back cover; 5 or 6 pages mimeographed monthly.

Health Finder, W. Va. Tuberculosis and Health Assn., Charleston, W. Va. Monthly.

The Junior Crusader, Wis. Anti-Tuberculosis Assn., 1018 N. Jefferson St., Milwaukee. 4 pages; punched for loose-leaf binder. Also used by Michigan Tuberculosis Assn. Monthly.

Mouth Health Quarterly. American Mouth Hygiene Assn., Essex Bldg., Minneapolis. $4.00 a year. A distinguished Advisory Board and Board of Trustees. Type, paper and page-layout make for easy reading. Interesting illustrations of materials and methods from several countries

And farewell to *Missouri Public Health News,* State Dept., because of "the extreme decrease in the state revenue."

RADIO

Contrast the attention values of two radio titles (both addresses by the same educator!): "The State's Responsibility for the Education of Its Children" and "Safeguarding the Farmer's Best Crop."

Connecticut State Dept. broadcasts every Thursday, 1:25 to 1:30 p.m., via NTIC. Topics and speakers have been announced from Sept. 3 to June 30. Copies of the talks will be sent upon request.

Some of the Conn. broadcast titles: "The Fall Crop of Brides," "Deferred Payment," "Watch Your Step," "The Sniffle Stage of Disease," "The Tragic Loss of Mothers," "Nagging," "Fat Mothers and Thin Children," "Before Germs Were Known," "Placing That Queer Member of Your Family."

Some titles from Dr. H. W. Haggard's popular Sunday night broadcasts: "Yellow Jack," "A Family Disease," "The Menace of Middle Age," "The Dancing Mania," "The Apothecary," "Athletics with Safety."

MAGAZINE ARTICLES

"Almost Every One Has Infantile Paralysis"—*Literary Digest.* Oct. 31, 1931.

"Disease, Its Cause and Prevention," by Prof. J. E. Greaves. *Science Monthly,* Lancaster, Pa. Nov., 1931. *50 cents.*

"Eating for Good Looks," by H. R. Cades. *American Girl,* New York. Nov., 1931. *20 cents.*

"How Long Will I Live?" by H. S. Cumming, M.D. *New York Herald-Tribune Magazine.* Nov. 1, 1931.

"Mental Hygiene in the Home." *Ladies' Home Journal.* Oct., 1931.

"New Styles in Diet As Well As in Dress," by E. F. Barnard. *New York Times Magazine.* Nov. 1, 1931.

MOUTH HYGIENE

Blazing a New Trail Through the Rockies. Canadian Dental Hygiene Council, Medical Arts Bldg., Toronto. Reports in some detail campaigns in British Columbia, Quebec and Manitoba.

"Educational Program on Dentistry for Children in Michigan," by W. R. Davis; "The Iowa Plan for Dental Health Education," by T. A. Gardner. *Journal of Amer. Dental Assn.,* 212 East Superior St., Chicago. Oct., 1931.

Healthy Teeth. 3 pages of mimeographed copy from League of Red Cross Societies, 2, Avenue Velasquez, Paris, VIII, France.

Suggestions for the Promotion of Mouth Health in Schools, by Bureau of Mouth Hygiene, Michigan Dept. of Health, Lansing. (No date.) 5 p. mimeographed; illustrated. *Free samples to health workers.*

The valedictory issue of *Missouri Public Health News* (Sept., 1931), Jefferson City, was a valuable special mouth hygiene edition.

MOTION PICTURES

The Canadian Tuberculosis Association, through the coöperation of the Dominion Motion Picture Bureau,

is assembling 16 mm. films of all new additions to Canada's tuberculosis sanatoriums together with black and white plans of one ward-floor in each building. The association hopes in this way to bring to the attention of sanatorium boards and others the advances being made in the construction of these new buildings.

"Why Willie Was Willing to Wash," National Motion Pictures Co., Indianapolis. 16 mm. and 35 mm. 1,000 feet. Disease dangers of dirt vs. cleanliness and soap.

"Golden Health." 1,000 feet. 16 mm. and 35 mm. Orange industry and "health-giving qualities." Address upon request.

"The kindest cut of all" (how to cut and edit an amateur movie); "Little touches" (details which create symbolism and picture-telling); "The title is dead; long live the title!" (in the amateur production); "Perfecting projecting" (how to show pictures better); these and other articles in October and November, 1931, issues of *Movie Makers*, 105 W. 40th St., New York. *Sample free.*

If you wish to locate amateur movie clubs in your city write to Arthur L. Gale, Amateur Cinema League, 105 W. 40th St., New York.

Arranging for a demonstration of the new superspeed film would provide a good excuse for getting together local amateur movie people connected with health and social welfare agencies, with others who might become interested in pictures for those organizations. The demonstration could include explanations of the new possibilities for taking indoor pictures.

POLIOMYELITIS

"Infantile Paralysis," by T. P. Gittens. *Monthly Bulletin*, Philadelphia Dept. of Public Health. Sept., 1931.

"Paralysis Immunity Gains—Adults Resist Infection," by Dr. Simon Flexner. *Health News*, New York State Dept. of Health. Sept. 14, 1931. Also, *New York Times*. Aug. 30, 1931.

READY-MADE NOVELTIES

If you want ready-made illustrations for holiday or seasonal issues of your bulletin or for other printed matter, costing from $1.00 to $3.50, the editor will supply addresses.

If ever, in a campaign, you wish to use door hangers, attractive cards to hang on door knobs, the editor of this department will supply you with an address for two-color blanks.

If you wish your Christmas cards to bear a really truly "Santa Claus" postmark write for address of one who will mail them—Santa Claus, Indianapolis.

If you want ideas for putting the holidays into your bulletin look up this department in the March, 1931, issue.

BOOKS AND REPORTS

Typhoid Fever. Its Nature, Mode of Spreading, and Prevention—*By William Budd. New York: American Public Health Association,* 1931. 200 pp. Price, De luxe ed., $10.00; Reg. ed., $5.00.

To attempt a critical review of a medical classic such as that before us would be a work of supererogation and smack of impudence. It is sufficient to call attention to the fact that Budd was the first to recognize clearly the contagiousness of typhoid fever, the danger of polluted sewage and defective sewerage.

This book was written some 8 years before the discovery of the germ of typhoid fever and 10 years before its isolation on solid culture media. The author was the first to point out the danger of disposing of typhoid fever discharges in such a manner that they could reach drinking water, and characterized it as criminal.

One sentence, with which he closes his summary, is of itself enough to make him immortal: "And he that was never yet connected with his poorer neighbour, by deeds of charity or love, may one day find, when it is too late, that he is connected with him by a bond which may bring them both, at once, to a common grave." Though he wrote this with particular reference to typhoid fever, it is applicable to all contagious diseases. We wish that this could be memorized by all medical students and social workers.

The present volume is published by the American Public Health Association for Delta Omega as the first of a series of reprints of public health classics. The text follows the original publication of 1874, with the exception of three errata noted by the publisher of the original edition. "There have been printed from type by the George Grady Press, New York, eight hundred copies of this book, the first thirty-five of which have been printed on hand made paper, numbered and bound in Persian Leather."

It is hard to speak too highly of this work, beautifully and interestingly written, and containing a wealth of facts gained by an epidemiological study which might well serve as a model to modern day workers. It deserves a place in all medical libraries. The original illustrations, one of them in colors, have been reproduced. The printing and make-up are exceptionally good, as befits the character of the text.

MAZŸCK P. RAVENEL

Nineteenth Annual Report of the International Association of Dairy and Milk Inspectors.

This, the 19th annual report of the association, includes the constitution, by-laws, program of the 19th annual convention, reports of committees, and papers read at the convention which was held in Cleveland, O., October 22–24, 1930.

Many important and interesting papers were read on bacteriological and laboratory studies and procedure; milk plant studies, including pasteurization time and temperature; inspection of milk plants; cleansing and sterilization of milk equipment; flavors in milk; milk content from farm to table; cooperation problems between inspectors and plants; and opportunities in the dairy industry. Others included one on a survey of the New York State milk and cream supply, one on undulant fever, and a report on such activities of

the International Association of Milk Dealers as would be of interest to the association. Every paper had something to offer to the milk industry in general, and the report is of particular interest to every dairy and milk inspector, as well as every public health official. VINCENT B. LAMOUREUX

On the State of the Public Health—*Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1930. London: His Majesty's Stationery Office,* 1931. Price, 4 s. net.

This report, which has just come to hand, is a fit companion for those by the same author which have gone before. It is a masterly document covering almost every conceivable phase of the work being done officially in England. It does not lend itself readily to such a short review as can be given here. Only one or two striking points can be mentioned.

For England and Wales, the increase in population during the last decennium has increased only slightly more than 2 million, the lowest rate of increase recorded, with the exception of the period 1911–1921, during which the World War occurred.

Infant mortality fell from 74 per 1,000 births in 1929 to 60 per 1,000, the lowest recorded. Puerperal mortality showed a slight increase, 4.40 against 4.33 for 1929.

In spite of the fact that 1930 was a healthy year, with the lowest death rate on record, sickness claims under the insurance act increased rapidly. The cost of health insurance benefits was 15,000,000 pounds, and time lost from industry 26,000,000 weeks—a terrible burden.

Of particular interest is the report on cancer, which discusses the question of whether the increase in this disease is actual, or due to the saving of life in the early ages, bringing a greater number of people to the age when cancer is most prevalent. It inclines to the view that the "aging of the population" through preventive measures in early life plays considerable part in the increase, and that the remainder, with the exception of breast cancer, may easily be ascribed to earlier recognition. This is a hopeful view which we trust is correct.

There is a full discussion of the relation of food to health and disease in which considerable space is given to milk and its production. There is also considerable space given to the work of the Ministry's Pathological Laboratory, especially the bacteriological side, in which the relation of streptococci to each other and various diseases is discussed, chiefly by Griffith.

It ends with appendixes devoted to population, separate diseases, beds available, birth rate, etc. We know of no report which can be read with as much advantage by the average health officer, even though it applies particularly to England and not to this country.

MAZŸCK P. RAVENEL

Health at the Gateway—*By E. W. Hope, O.B.E., M.D., D.Sc. Cambridge: Cambridge University Press,* 1931. 205 pp. Price, $5.00.

This book is a historical narrative dealing with the development of health services in one of the leading maritime cities of the world—Liverpool, England. The author has been connected with the health activities of Liverpool for many years and, for the most part, restricts his story to the happenings of his own lifetime. He traces step by step the many difficulties encountered and the advances made during the forward progress of health protection in his city during the last half century.

As Liverpool is a port city or, to use the terminology of the author, a gateway into England, the subject matter pertains largely to port administration and to the health problems of a world

port. The development of international obligations in the field of maritime health is discussed in detail. The author also considers the developments which have occurred in other fields of health work, such as school hygiene, housing, water and food supplies, etc.

The book is well written and well worth reading by the health officers of America. G. C. DUNHAM

Medical Jurisprudence—*By Carl Scheffel, Ph.B., M.D., LL.B. Philadelphia: Blakiston,* 1931. 313 pp. Price, $2.50.

The object of this book is to give to practising physicians a working conception of their personal legal rights and responsibilities. Written by one who has both a medical and a legal education, it deals with such pertinent topics as contractual relationships, agency, torts or wrongs, witnesses and evidence, property interests, and criminal responsibility. Public health law is not considered. A concluding chapter on physicians as lawmakers is philosophical rather than legal, pointing out desirable new legislation needed for the benefit of physicians.

The medical reader will not find the book a suitable substitute for an attorney, but merely an introduction to some of the legal aspects of his civic and business relations. Although readable, the style is not distinguished by clarity and smoothness. The book is well printed and has an index. It should prove of interest and value to the physician who seeks to avoid legal difficulties. JAMES A. TOBEY

Eye, Ear, Nose and Throat for Nurses—*By Jay G. Roberts, Ph.G., M.D. Philadelphia: Davis,* 1931. 213 pp. Price, $2.25.

The author's main purpose is to give to the student nurse and the graduate nurse a broader conception of nursing in diseases and surgery of eye, ear, nose and throat, so that she may be prepared to care for these specialties with the same care and skill as in the general field of medicine and surgery; and to acquaint the student with the main purpose and care of delicate instruments used in eye surgery, and the exceptional skill and delicacy required in handling such instruments.

The above aims seem most desirable and practicable. The author adequately covers every phase of eye, ear, nose and throat nursing.

The subject matter is well chosen and treated in an interesting and comprehensive manner and should adequately meet the needs of the present-day student. The material is arranged in good order for teaching. Illustrations are good and help to demonstrate clearly the point under discussion.

In addition to the general treatment of subject matter, a chapter is given to " don'ts " which gives additional emphasis to nursing technic. The chapter on Emergencies is especially good.

This book is a good text for student nurses. BEATRICE E. GERRIN

Yellow Fever—*An Epidemiological and Historical Study of Its Place of Origin—By Henry Rose Carter, M.D. Edited by Laura Armistead Carter and Wade Hampton Frost. Baltimore: Williams & Wilkins,* 1931. 308 pp. Price, $5.00.

All students of yellow fever will welcome the appearance of this book which has been eagerly awaited.

It was the author's intention to write a complete history of yellow fever. Unfortunately for the world his health was such that he could complete only one part of it, and this had been devoted to a study of its epidemiology and place of origin.

We take it that there is no question of the fact that no one in this country or even in the world was better fitted for such a task than Dr. Carter. It has

been said of him, with truth we believe, that he knew more about yellow fever than any other man in the world. A lifetime of study and observation, crowned by his observations of the disease during the last epidemic in the Mississippi Valley, in which he pointed out the interval between first and secondary cases as indicating an extrinsic period of incubation, which greatly aided Walter Reed in his work, had fitted him for this task. Fortunately the material before us had been fully drafted, with many notes, which the editors have utilized in making the final revision. The work, however, can be regarded as that of the author himself, much of it done while he was confined to bed during the last year of his life.

The book falls into three parts: the first considers the epidemiology of yellow fever; the second, diseases which have been or might have been confused with it in the past; while the third, which makes up 184 of the 271 pages of text, is devoted to a careful study of its place of origin. As the disease has been permanently endemic only in tropical America and West Africa, attention is given particularly to them. We know of no such complete study as is here presented. Every point is scientifically considered, so the reader is quite prepared to accept the conclusion of the writer as presented in his summary in the last chapter, that Africa is the home and place of origin of yellow fever.

The book ends with an extensive bibliography and a good index. It is written in the clear, interesting, and scientific style which those who had the honor of knowing the author expected. One cannot but regret that Dr. Carter did not live long enough to know of the experiments in West Africa, showing that some 13 species of mosquitoes are capable of carrying yellow fever, that certain monkeys are susceptible to the disease, that it can be transmitted to man, at least in the laboratory, without the intervention of the mosquito, and perhaps from mosquito to mosquito. One can visualize the intense interest which this new work would have had for him, and all would have profited by he careful analysis he would have made of it. While accepting the new facts, there is no reason to believe that our former knowledge is not in the main correct and practical for the prevention of the disease.

It is hard to speak too highly of this work and of the careful editing done by Laura Armistead Carter and Wade H. Frost. The Rockefeller Foundation, through Dr. Wickliffe Rose, then Director of the International Health Board, gave material assistance in its preparation. The printing and make-up are of the best. Altogether, the work is a most valuable contribution to science, and will always be authoritative on the subjects it discusses.

MAZŸCK P. RAVENEL

Genetics and Eugenics. *A Textbook for Students of Biology and a Reference Book for Animal and Plant Breeders—By W. E. Castle. (4th ed.) Cambridge: Harvard University Press,* 1930. 474 pp. Price, $3.00.

The Genetics of Domestic Rabbits. *A Manual for Students of Mammalian Genetics and an Aid to Rabbit Breeders and Fur Farmers—By W. E. Castle. Cambridge: Harvard University Press,* 1930. 31 pp. Price, $1.25.

Professor Castle's books are characterized by clarity and candor and his treatise *Genetics and Eugenics* has a wide use among classes in these fields. In this fourth edition human heredity receives a more extended treatment; the basic field of unit characters in rodents is revised to incorporate new data; polyploidy, parthenogenesis, and the artificial production of mutations re-

ceive new treatment; and the subject of selection is simplified.

Professor Castle's treatise on *Genetics of Domestic Rabbits* is of exceptional interest to laboratory workers who depend on these animals so widely for experimental use. Color and weight are both heritable characters and are significant as to laboratory usefulness and costs of maintenance respectively. Weight of the adult varies from 3 lb. in the Polish breed to 15 in the Flemish Giants. The genetic constitutions of about 58 genotypes designated as types or breeds by breeders, belonging to 11 major phenotypes, are tabulated and discussed in detail. C. A. KOFOID

International Health Year Book, 1929—*Published by the League of Nations, Distributed in the United States by the World Peace Foundation, 40 Mt. Vernon Street, Boston, 1930.* 1504 pp. Price, $8.00.

This is the fifth edition of the *Year Book*. It contains extensive vital statistics and deals with the public health progress of 40 countries and colonies during the year 1928.

Extensive tables present fundamental statistics for the various countries on area, population, movement of population, birth rates, mortality, causes of death, infant mortality, etc. Developments in the campaign against acute and chronic diseases are discussed as well as special public health activities such as training, child hygiene, water supply, waste disposal, sickness insurance, and rural health service. There is a discussion of public health legislation and budget for each country, and for certain nations general statements are presented concerning developments in the field of curative medicine, covering such topics as hospitals, dispensaries, pharmacies, medical personnel and the cost of medical care.

It is obviously impossible to secure data on all topics from every country but the volume presents an excellent comparative summary with the more important health facts and activities of the various countries for the year in question. C. E. TURNER

Jungles Preferred—*By Janet Miller. Boston and New York: Houghton Mifflin,* 1931. 321 pp. Price, $3.50.

This is a fascinating story of a woman physician who after serving in Japan and China was asked to go to Belgian Congo. Although she is described as a "little brown sparrow of a woman," she underwent hardships which would have tried strong men.

Even as a book of travel and exploration it is fascinating, but from the medical standpoint, it gives an insight into the superstitions, unhygienic practices, and diseases of the Dark Continent, as well as their treatment and the results.

Dr. Miller has a keen sense of humor as well as a broad love for her fellow beings, which makes the book delightful. It can be highly commended not only to pass pleasant hours, but also for its wealth of information of that part of the world which is too little known, but filled with mystery and romance, and fast coming to be of enormous commercial importance.

MAZŸCK P. RAVENEL

The Mouth Health Quarterly, *Vol. I, No. I. Minneapolis: The American Mouth Health Association,* October, 1931.

The growing recognition of the importance of oral hygiene is evidenced by the appearance of a new journal, *The Mouth Health Quarterly,* published by the American Mouth Health Association, with headquarters in the Essex Building, Minneapolis, Minn.

The first number contains a number of excellent articles by doctors, dentists, nurses, and students of nutrition. It is attractively gotten up and beautifully printed. MAZŸCK P. RAVENEL

A Text Book of Medical Diseases for Nurses—*By Arthur A. Stevens, M.D., and Florence Anna Ambler, B.S., R.N. Philadelphia: Saunders,* 1931. 503 pp. Price, $2.75.

In this latest contribution to the field of medical nursing, we have not only an interesting and readable book, but a complete, clear and concise presentation of the medical aspect of disease. The subdivisions of chapters are captioned—Definition, Etiology, Symptoms, Pathology, Complications, Prognosis and Treatment, in logical sequence.

Complementing this able discussion of disease, Miss Ambler in simple and direct phraseology describes in detail the nursing care of the patient.

It is this combination of the medical aspect of the disease, with the latest and most approved method of nursing care, which makes this a valuable text for the student in the school of nursing.

To the graduate nurse, who has not recently had opportunity for a refresher course, this book is recommended. For her the matter of the appendix, which describes the nursing procedure used in the Philadelphia General Hospital, will be of interest and value.

This book covers a broad field and leaves little to be recommended, other than the addition of more illustrations and graphs.

MARY WALSH

BOOKS RECEIVED

A TEXT-BOOK OF ORAL PATHOLOGY FOR STUDENTS AND PRACTITIONERS OF DENTISTRY. By Russell W. Bunting. Philadelphia: Lea & Febiger, 1929. 495 pp. Price, $7.00.

GYNECOLOGY AND UROLOGY FOR NURSES. By Samuel S. Rosenfeld. New York: Wood, 1931. 230 pp. Price, $2.00.

SOCIAL POLITICS AND MODERN DEMOCRACIES. By Charles W. Pipkin. New York: Macmillan, 1931. Two Vols. Price, $7.50.

A SYSTEM OF BACTERIOLOGY IN RELATION TO MEDICINE. Vols. VI and IX. London: His Majesty's Stationery Office, 1931. Price, Each $6.00.

HEALTH THROUGH LEISURE-TIME RECREATION. By Edith M. Gates. New York: The Woman's Press, 1931. 216 pp. Price, $2.50.

CANCER AND RACE. By Maurice Sorsby. New York: Wood, 1931. 120 pp. Price, $3.00.

AN INTRODUCTION TO MATERIA MEDICA. Drugs and Solutions. 3d ed. By Stella Goostray. New York: Macmillan, 1931. 214 pp. Price, $1.75.

SCHOOL VENTILATION. PRINCIPLES AND PRACTICES. New York Commission of Ventilation. New York: Teachers College, 1931. 73 pp. Price, $1.00.

SCHOOL NURSING—A CONTRIBUTION TO HEALTH EDUCATION. By Mary Ella Chayer. New York: Putnam, 1931. 292 pp. Price, $2.50.

MARKET MILK. 2d ed. By Ernest Kelly and Clarence E. Clement. New York: Wiley, 1931. 489 pp. Price, $4.50.

THE NURSES' MEDICAL LEXICON. By Thomas Lathrop Stedman. New York: Wood, 1931. 629 pp. Price, $2.00.

ESSAYS ON MARRIAGE. By Frederick M. Harris. New York: Association Press, 1931. 208 pp.

PREPARATION OF SCIENTIFIC AND TECHNICAL PAPERS. By Sam F. Trelease & Emma Sarepta Yule. Baltimore: Williams & Wilkins, 1930. 117 pp. Price, $1.50.

NOISE AND VIBRATION ENGINEERING. By Stephen E. Slocum. New York: Van Nostrand, 1931. 171 pp. Price, $2.75.

THE CONQUEST OF OLD AGE. By Peter Schmidt. New York: Dutton, 1931. 307 pp. Price, $5.00.

PSYCHOLOGY: SCIENCE OR SUPERSTITION? By Grace Adams. New York: Covici-Friede, 1931. 299 pp. Price, $2.50.

CHILD HEALTH AND THE COMMUNITY. By Courtenay Dinwiddie. New York: Commonwealth Fund, 1931. 80 pp. Price, $1.00.

THE CARE AND FEEDING OF ADULTS WITH DOUBTS ABOUT CHILDREN. By Logan Clendening. New York: Knopf, 1931. 317 pp Price, $2.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Tuberculosis Relief and Prevention—The amount of relief available to tuberculous families in Syracuse is inadequate, and without effective relief medical care cannot fulfil its possibilities. What relief is given is unrelated to the needs of tuberculosis prevention and good social service. As conditions are much the same the country over, the solution offered may be generally applicable.

BURRIT, B. B. Social Service and the Relief of Tuberculous Families. Milbank Quart. Bull., 9, 4: 147 (Oct.), 1931.

Russian Public Health—Reporting briefly on conditions observed during a short visit, this account by a British medical officer gives every evidence of being dispassionate and true; therefore, it seems a significant contribution.

CRITCHLEY, A. M. Public Health in Russia. Med. Off., 46, 14: 147 (Oct. 3), 1931.

Yellow Fever—The last word on the means by which yellow fever is spread and the accepted preventive measures is summarized in this address.

CUMMING, H. S. Present-Day Problems in Yellow Fever. Pub. Health Rep., 46, 40: 2361 (Oct. 2), 1931.

Transmission of Typhus Fever—Evidence is presented pointing to the rat flea as a common vector of endemic typhus from rat to rat and man to man.

DYER, R. E., *et al.* The Experimental Transmission of Endemic Typhus Fever of the United States by the Rat Flea *Xenopsylla Cheopsis*. Pub. Health Rep., 46, 42: 2481 (Oct. 16), 1931.

Racial Susceptibility to Communicable Diseases—Significant differences are found in death, case and fatality rates for diphtheria and scarlet fever and measles death rates among several racial groups under uniform conditions of contact exposure.

EMERSON, H. Significant Differences in Racial Susceptibility to Measles, Diphtheria and Scarlet Fever. J. Prev. Med., 5, 5: 317 (Sept.), 1931.

Mechanisms of Immunity—A series of papers discussing the phenomenon of immunity from the standpoints of tissue resistance, sub-clinical infections, and humoral elements. Although this series is not a formal symposium, the papers, read in succession, constitute an inclusive presentation of this difficult subject.

GAY, F. P., *et al.* Tissue Resistance and Immunities. J. A. M. A., 97, 17: 1193 (Oct. 24), 1931.

Nutrition and Puerperal Infection—Every second woman in an out-patient prenatal group was given an extra supply of vitamins A and D. These women had a greatly reduced incidence of puerperal sepsis over the control group.

GREEN, H. N., *et al.* Diet as a Prophylactic Agent Against Puerperal Sepsis. Brit. M. J., 3691: 595 (Oct. 3), 1931.

Diphtheria Contacts and Carriers—Of 3,449 contacts, 11.7 per cent were found positive. Of those negative at the first test, 13.4 per cent were found positive after 10 days. Many other significant findings are included in this Baltimore study.

KUSAMA, Y., and DOULL, J. A. Carrier Infection Among Family Associates of Diphtheria Patients. J. Prev. Med., 5, 5: 369 (Sept.), 1931.

Computing Maternal Death Rates—What determines the cause of maternal deaths?—the statement of the physician, the registrar, the code of

rules, or the exceptions to the rules? Is there a way of determining rates better than deaths per 1,000 births? In the light of acknowledged disparity, should comparative national rates be computed in tenths of a per cent? Are we justified in comparing selected group experience with the country at large? Here are some provocative questions, the answers to which should be considered by all sanitarians who have regard for the truth.

LOWRIE, R. J. The Maternal Mortality Rate Computed and Standardized by a New Method. New York State J. Med., 31, 19: 1189 (Oct. 1), 1931.

Estimating Nutritional Status—Proposing a width-length factor by which the usual height-weight-age tables can be made more nearly true indices of nutritional status. An important contribution.

LUCAS, W. P., and PRYOR, H. B. Physical Measurements and Physiologic Processes in Young Children. J. A. M. A., 97, 16: 1127 (Oct. 17), 1931.

Cancer Immunity Research—Reporting from London limited but promising studies in immunity against implanted mouse tumors.

LUMDSEN, T. The Problems of Cancer Treatment and Research with Special Reference to Tumor Immunity. J. State Med., 39, 10: 577 (Oct.), 1931.

Heart Disease in Children—This study of San Francisco school children, of whom 2 per cent were reported as cardiac suspects, reveals many interesting conditions. Scarlet fever and diphtheria are apparent factors causing organic heart disease.

RICHTER, I. M. Incidence and Variety of Heart Disease in School Children of San Francisco. J. A. M. A., 97, 15: 1060 (Oct. 10), 1931.

Applied Sex Hygiene—Excellent indeed is this straightforward account of what a school nurse really can do in the treatment of sex problems. Worth a bushel of vague generalizations on social hygiene.

SMALLEY, R. The School Nurse Meets Social Hygiene Problems. Pub. Health Nurse, 23, 10: 475 (Oct.), 1931.

Preventing Diphtheria in Bridgeport—If you read this conclusion you will not be satisfied until you have read the whole paper. "We believe that the immunization treatments are no more important in the reduction of diphtheria in Bridgeport than the three administrative measures listed above (multiple negative release culture, bacteriological examination of every possible contact, selection of most effective culture medium)."

WILD, W. F., and TIRRELL, K. R. Diphtheria Control in Bridgeport, Connecticut. J. Prev. Med., 5, 5: 303 (Sept.), 1931.

Studies in Health Education Results—Can general health education propaganda be made to pay dividends, or would the money and effort be better spent on direct preventive measures? An answer to the question is found in this Bellevue-Yorkville study.

ZIMAND, S. Campaign Calendar of a Public Health Organization. Milbank Quart. Bull., 9, 4: 165 (Oct.), 1931.

NEWS FROM THE FIELD

Recommendations of the Committee on Employment Plans and Suggestions, Chicago, Ill., October 26 and 27, 1931

AMONG the recommendations of this committee are the following:

Recommendation no. 1.—Resumption of Work

United National Action to Encourage Every American Citizen Now Employed to Resume Normal Buying—To Use Available Income to Purchase Goods Normally Needed and in the Replacement of Which Labor is Employed—Is a Condition Precedent to Any Hopeful Program to Constructively Increase Employment; Continued and Further Restriction of Consumption of Goods and of Expenditures for Improvements and Replacements Inevitably Will Offset Any and Every Effort for Emergency Relief.

Recommendation no. 4.—Spread Work

The Spreading of Available Work in Industrial, Commercial, and Professional Enterprises Still is the Most Fruitful Field for Immediate Unemployment Relief. Workers Have Generously Shared Hours of Labor and a Substantial Proportion of Employers Have Given Earnest and Sincere Coöperation, but Abundant Evidence is at Hand that a Large Number of Employers Have Not Responded. Therefore, the Committee Renews its Recommendations of September 28.

Recommendation no. 6.—Public Works

The Committee Urges That Nothing be Omitted to Make Immediately Available New Additional Employment Represented by Public Work Already Authorized and Appropriated for but Delayed or Blocked by Removable Legal Obstacles and Supervisory Red Tape.—The President's Organization on Unemployment Relief, Walter S. Gifford, *Director*, 1734 New York Avenue, Washington, D. C.

Canadian Research Council Meeting Postponed

THE Canadian National Research Council announces that the Fifth Pacific Science Congress, planned under the auspices of the Canadian National Research Council, in Victoria and Vancouver, British Columbia, between the dates May 23 and June 4, 1932, has been postponed for a year.

Hygiene and Baths

THE American Association for Hygiene and Baths held its 1931 Convention at the Webster Hall Hotel in Detroit, Mich., November 6 and 7, under the auspices of the Detroit Department of Health with the coöperation of the Michigan State Department of Health.

John Hancock Issues New Booklet

THE great variety of functions through which the modern city health department prevents the spread of disease and promotes the health of the people it serves are set forth in a new booklet, *Your Friend, the Health Officer*, issued by the Life Conservation Service of the John Hancock Mutual Life Insurance Company, Boston, Mass. This contribution to the support of the modern health program was written by

Dr. Wilson G. Smillie, Professor of Public Health Administration, Harvard University Medical School.

This new booklet is available for immediate distribution to health officials.

SEWAGE WORKS ASSOCIATION MEETING

THE fall meeting of the New York State Sewage Works Association was held at Ithaca, N. Y., October 16–17, President J. F. Skinner presiding. The total registration of members and guests was 96. Among the papers presented were—Sedimentation Tank Design and Performance, by Glenn D. Holmes, and a Symposium on Stream Pollution, participated in by Professors Chamot, Needham, and Classen, of Cornell University, and Dr. Emmeline Moore, of the New York State Conservation Department.

TEXAS PUBLIC HEALTH ASSOCIATION MEETING

THE Texas Public Health Association held its annual meeting in Houston, November 9–13. Dr. A. C. Hutcheson, City Health Officer, and Dr. H. K. Read, president of the Association, Houston, were joint directors of the meeting. There were two days of laboratory work, one day devoted to round table discussions of the Texas drought relief health program, malaria control, and county unit work. One evening session featured unemployment relief measures, and two days were devoted to various public health problems.

PSYCHIATRY

A NEW Division of Psychiatric Education has been created in the office of The National Committee for Mental Hygiene, with the aid of The Commonwealth Fund, The New York Foundation, and The American Foundation for Mental Hygiene, all of which have contributed to the support of the project.

The Division is under the immediate direction of Dr. Ralph A. Noble, of Sydney, Australia, who has a wide knowledge of psychiatric education in Europe and America and was invited to this country to inaugurate the work of the new Division and to take active charge of the program; and associated with him is Dr. Franklin G. Ebaugh, Director of the Colorado State Psychopathic Hospital, who is familiar with psychiatric training problems in this country and has given the subject special study.

PERSONALS

DR. CHARLES WARDELL STILES was retired from active duty in the U. S. Public Health Service on October 1, after more than 40 years of service in the government. Dr. Stiles' many friends took this occasion to extend to him a dinner, which was held at the Cosmos Club, November 7.

DR. L. D. BRISTOL, Member A. P. H. A., of New York, Health Director of the American Telephone and Telegraph Company, has contributed the Chapter on Health in the *Handbook on Business Management,* recently published for the American Management Association.

MAJOR G. C. DUNHAM, formerly of the Medical Field Service, U. S. Army, Carlisle Barracks, Carlisle, Pa., is now located in the Office of the Governor General, Philippine Islands, Manila.

DR. A. JUDSON KEMPER has been appointed Health Officer of Harrison County, W. Va., to succeed Dr. V. A. Selby, Member A. P. H. A., retired.

DR. R. S. PATTERSON has been appointed representative of Public

Health Education Section on the A. P. H. A. nominating committee.

EDWARD F. BROWN resigned as executive of New York's Diphtheria Prevention Commission, thus closing the 3-year program which reduced cases about 56 per cent and death rate about 30 per cent.

HORACE HUGHES is now in New York as administrative assistant, Tuberculosis and Health Committee, State Charities Aid Assn., with special reference to health education and publicity.

JOHN W. KELLY is director of health education, Kentucky State Board of Health.

HARRIET L. PARSONS has become educational assistant, Massachusetts Society for Mental Hygiene.

CONFERENCES

January 22–23, American Social Hygiene Association, New York, N. Y.

April 4–8, American College of Physicians, San Francisco, Calif.

April 11–15, American Nurses Association, San Antonio, Tex.

April 11–15, National Organization for Public Health Nursing, San Antonio, Tex.

June 6–9, National Tuberculosis Association, Colorado Springs, Colo.

July, The Second International Conference of Social Work, Frankfurt, Germany.

September 6–9, Annual Meeting of the International Union Against Tuberculosis, The Hague, Holland.

WHY B-K IS THE BEST STERILIZER

B-K is a standardized sodium hypochlorite solution in a concentrated form . . . **B-K** has a quick-acting, germ-killing power, many times more powerful than carbolic acid . . . **B-K** is soluble in water and as efficiently active in cold water as in warm water . . . **B-K** is clear and free from oil, acids and poisons . . . and harmless to equipment and human tissues. **B-K** is dependable—easy to get—easy to use—and very economical. Leading organizations of public health recommend **B-K** as a highly effective sterilizer of dishes, glasses and silverware in public eating and drinking places.

Interesting data will be sent on request.

GENERAL LABORATORIES, INC.
1230 Dickinson Street, Madison, Wisconsin

B-K is a quick-acting germ-killer . . . always uniform in quality, positive in results and manufactured under the strictest laboratory control.

B-K
Reg. U.S. Pat. Off.
Bacilli-Kil
A POWERFUL GERM KILLER

Kellogg's ALL-BRAN
RELIEVES CONSTIPATION